

Think

August/September 1976

NEW YORK, NEW YORK

There's no other territory like it



Letter from the Chairman

Campaign '76. It's your decision

In this election year, as in the past, IBMers have involved themselves in politics at every level—ringing doorbells, stuffing envelopes, making contributions, and offering themselves as candidates. This is a great tradition and I applaud it.

For those of you who are new to IBM, I would like to restate our approach: Employees are granted reasonable time off to campaign for themselves or others, but this has to be without pay because of Federal and state laws. Campaigning and solicitation are not permitted on company premises. It goes without saying that IBM people shouldn't use company resources or services for political purposes.

This is the first election in which Federal law permits corporations—under certain circumstances—to help organize employee political action committees to raise funds for national candidates. Some corporations have formed such committees and are actively soliciting contributions from stockholders and employees. While this approach has some merit, it doesn't seem right for IBM because of our long-standing feeling that politics is best left to the individual.

We want to do everything we can to encourage IBM people to participate as individuals in the political process. It is one of our most important rights and responsibilities.

Think

Volume 42 Number 4
August/September 1976

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New York, New York

There's no other territory like it.

Also, nine IBM employees who love to work and live in the Big Apple tell what they do, and what the city means to them.

New Yorkers are still giddy from a month that brought them the "Tall Ships," a visit from the Queen of England, and the Democratic National Convention. Now it's back to business as usual—if that's what you can call activity in the bustling Big Apple. IBM people are seeing to it that their customers—whether they're Fifth Avenue stores or brokerage houses—have what they need to make it, in just about the toughest competitive environment anywhere.

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Meet the press

For Frank Cary it's an important part of the job.

Also, views on business and the press from three distinguished journalists—Columbia Journalism's Elie Abel, former *Fortune* managing editor Louis Banks, and *Los Angeles Times* editor William F. Thomas, Jr.

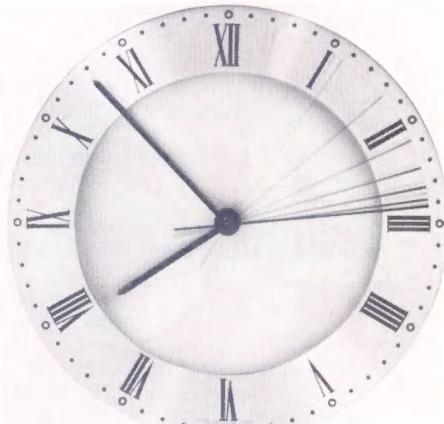
For IBM, as for many other major companies, the days of the "low profile" are over. Big business is big news. Moreover, in the wake of Watergate, journalists are cocking a more skeptical eye at the activities of all institutions, including business. All the more important, then, that they be informed and accurate in what they print. IBM works hard to make sure that happens. And IBM Chairman Cary, whether he is lunching with business editors or firing off a letter to a newspaper, is at the heart of the effort.

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Teaming up

Office Products and General Systems get together on the new Word Processor/32.

OP introduces a new ink-jet printer. It can do up to 92 characters per second.



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In a class by itself

At La Hulpe, seven schools have come together to form the company's biggest education facility—the Arthur K. Watson International Education Center.



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Our global economy

Part VI: concluding section in the series on "Business and how it works," with Princeton economist Peter Kenen.

What have we learned from the recent cycle of worldwide economic crises?

Also, a point-by-point assessment by IBM economist Larry Chimerine of how our market economy weathered the economic crises of these last several years. His verdict: "It works."

First, the bad news: In the worst recession in 40 years, inflation and unemployment soared, sales and production plummeted.

Then the good news: In spite of it all, our economic system was working—against formidable odds—and in the recent upturn has shown its ability to rally.

Lesson: In an economy as large and complex as ours, there are no easy rules. The system has proved that it is durable, adaptable, and responsive—it simply needs time.

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Scotty's place

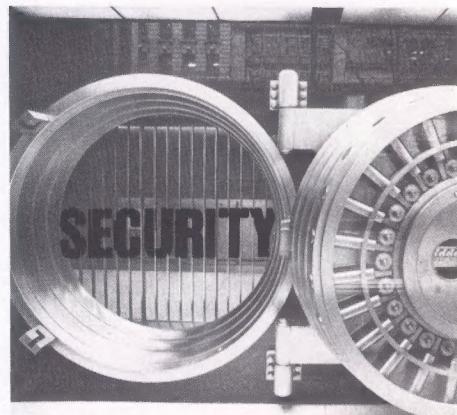
It's the Field Engineering Division. The customer's best friend.

The customer could be somewhere in a 10,000-square-mile territory in Alaska, or in a New York City skyscraper—or somewhere else in between. Wherever the customer may be, whatever the problem, help is quick to come from the people of the Field Engineering Division—the customer engineers, program support reps, dispatchers—all the men and women who keep things running. The head of the division and some of his people explain how they do it.

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Security

More than ever, it's every employee's business.



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Letters

On the Bicentennial Issue

Thank you, thank you for your beautiful "200 Years of Work in America." Throughout the country hawkers are selling jewelry, jackets and junk commemorating the Bicentennial of our great country, and it has been difficult to decide how best to remember this special year of 1976.

When your issue of *Think* came in the mail, there was no doubt left in my mind that this work of art was what I had been looking for to treasure through the years ahead, and hopefully for my youngsters to cherish in the future.

Jean L. Mullen
Burlington, Vt.

It's things like this that make IBM a great company, and make me proud to be a part of it.

James E. Deneen
New York, N.Y.

The editors and staff are to be congratulated for a great job. I would also like to thank Corporate management for encouraging and allowing such enterprises.

Darwin Caspell
Tacoma, Wash.

As a lifetime collector of Americana, I'd like to thank IBM Corp., for the outstanding issue of *Think* magazine. A true Bicentennial collector's item.

Patricia T. Ryan
San Francisco, Calif.

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August/September 1976

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May I thank you for taking the trouble to print such a remarkable magazine. The pictures are breathtaking.

You have sure made my life more pleasurable and made the country and its business a lot easier to get along in. Keep up the good work.

Leslie Doyle
Corpus Christi, Texas

Your special *Think* edition was great!

Philip H. Pallady
Endicott, N.Y.

As a first-line manager I try to instill a sense of frugality towards company expenses. My morale is adversely affected when I get a book at home that looks so costly. Also I found the contents to be boring. I feel that a tree died in vain.

Len Karstadt
East Fishkill, N.Y.

[Your Bicentennial issue] is beautifully put together, and I am extremely pleased with the way you handled my piece.

John Gardner
Chevy Chase, Md.

I particularly liked the front cover and the quote from Carl Sandburg's poem. Done with much feeling. You folks are great ambassadors for IBM!

Larry Vogel
Chicago, Ill.

You are to be congratulated for such a beautifully interesting and equally historical magazine. It is a magazine to be treasured.

Thomas J. Joseph
Poughkeepsie, N.Y.

This is one of the best written pieces of literature I have ever been privileged to read and makes me even more proud of IBM. A copy of this magazine issue should be in the library of every school in the United States.

Louise Heizer
Roanoke, Va.

As the wife of an employee, I enjoyed the book. A great deal of time and effort were spent in editing this book, and I feel the time and effort were well spent. Thank you for caring.

Mrs. Wesley E. Robinson II
Rome, Ga.

I strongly feel that the staff of *Think* magazine has earned a standing ovation. I am certain that all IBMers will feel as I do and that this book will be a meaningful memento throughout the years.

Bob Betcher
Manassas, Va.

Thank you! This is an issue to keep, reread, and pass (loan) on to others. I know I shall treasure it.

Patsy Holmes (Mrs. R. W.)
Owego, N.Y.

The July 1976 issue of *Think* is one of the most beautiful Bicentennial publications I've seen. It is really very well done.

James Petro
Sykesville, Md.

This issue is truly my most prized possession to be kept with me always.

Gene Bryngelson
Rochester, Minn.

We appreciate receiving, and enjoy reading *Think*. Each issue seems to improve. The July 1976 Bicentennial issue was outstanding.

Maurice W. Jones
Bethlehem, Pa.

It is one of the finest pieces of writing and art that I have ever seen! . . . I would like to give this issue to my grandchildren to keep and treasure.

Stephen E. Furth
Manhasset, N.Y.

Think magazine has always been a most interesting publication but this special issue is fantastic! I found myself feeling sensations of pride as I began to turn each page and read each article.

Mrs. Jean Crane
New Paltz, N.Y.

It is breathtaking. I was awed completely the day I opened the envelope and discovered the magazine. I want you to know how proud I am of IBM to have compiled, and distributed so widely this magnificent publication.

Marion E. Mundy
White Plains, N.Y.

Bicentennials only come once; *Think* has done justice to the occasion.

Lawrence C. Bates
Ithaca, N.Y.

It is such a tremendous tribute to the people of the United States of America.

Lee Hayes
Wichita, Kans.

I want to express my appreciation for the excellence of the Bicentennial edition of *Think* magazine. That issue will become a treasured part of my library.

Jeanne V. Oles
Poughkeepsie, N.Y.

Excellent, and I wish to thank IBM for sending it to us as a gift.

Not a complaint—only an observation. The time-worn hands used to years of loving labor, no doubt, were shown stitching on the flag. Plainly it can be seen that all the stitching is done by a modern machine, with no hand labor.

Next time sewing is involved, get a seamstress' critical eye first.

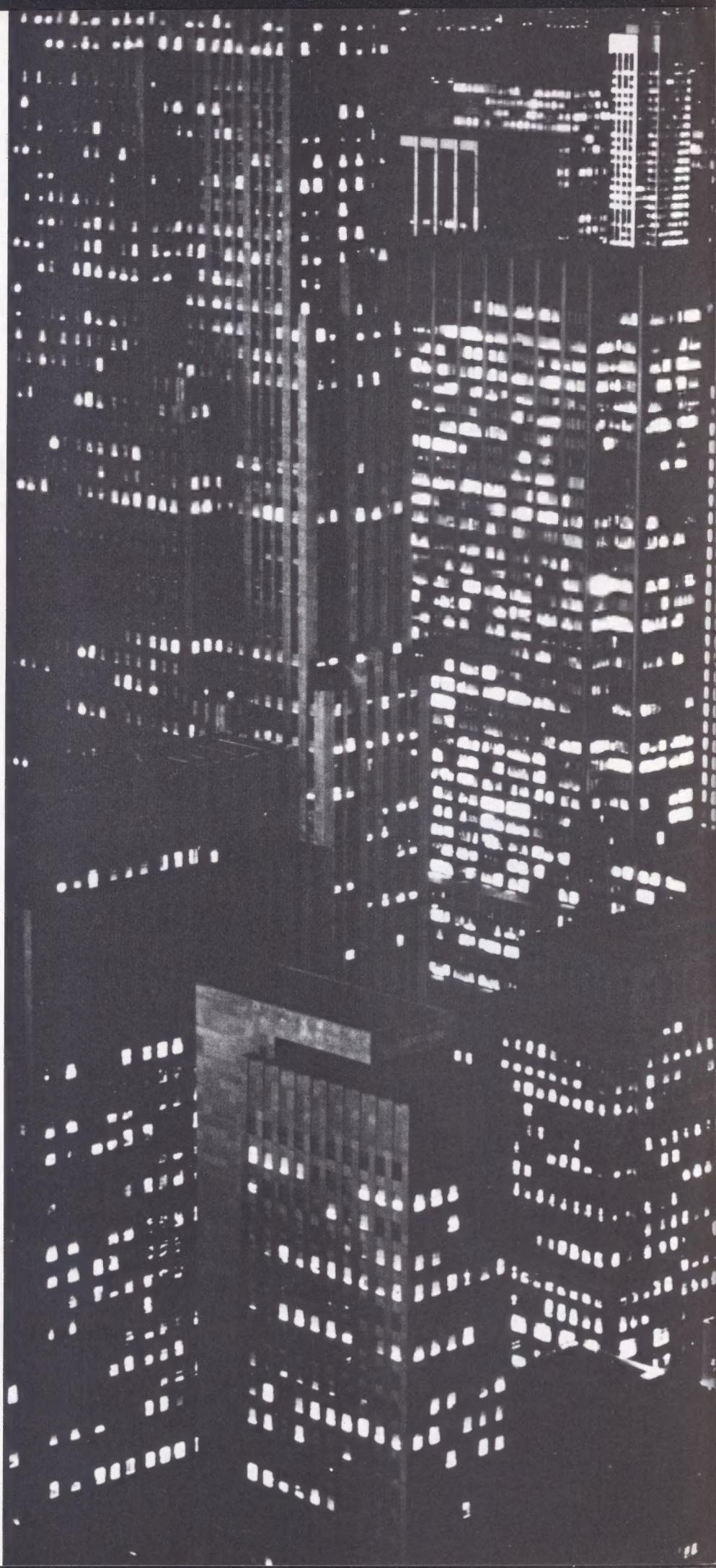
Joyce Rittgers
East Fishkill, N.Y.

(Editor's note: You're half right. The stripes were machine-sewn; the stars, sewn by the tailor's hands in the cover picture.)

NEW YORK NEW YORK

There's no other territory like it

by Geoffrey D. Austrian





"You have to be a little crazy to live in New York."

Crazy?

That's what the ads in the city's buses and subways say. Crazy about museums—there are 58. Crazy about zoos—there are 5 plus an aquarium. Crazy about street festivals—there were over 5,000 last year. Crazy about pubs and other watering holes—more than 4,000. Crazy about any kind of food—from Szechuan and Cantonese Chinese fare to Jewish bagels and lox to Hungarian chicken paprikash.

Of course, no one, least of all New Yorkers themselves, underestimates the city's very real problems. Or believes they will simply go away. But as Democratic Convention-goers learned in July, when even Texans and New Yorkers found themselves in a love feast, and as millions were reminded during the July Fourth weekend of the "Tall Ships," New York is an original. It has a beat and élan of its own—sometimes exasperating, but always exciting. And it is a life in which IBM is an active and energetic presence.

Each weekday, 4,800 IBM people—more than half of whom live there—find their way by foot, by bike, bus, car, train, and ferry, and by the city's 708 track miles of subways to the company's 21 locations where they occupy nearly one-and-a-half million square feet of working space. And some 1,000 more, who simply prefer to live in the city, make the reverse commute to IBM offices in the suburbs.

Despite the fact that most of the company's major New York facilities are located elsewhere throughout the state, IBM remains among the 25 largest of the tens of thousands of employers in the private sector in New York City.

Within the five boroughs, there are two Data Processing Division regional headquarters, a Field Engineering Division region, an Office Products Division district headquarters. There are 45 branch offices. Some locations house multiple offices and functions. At 2 Penn Plaza, for example, there is a DPD branch and a securities industries group; two GSD sales and two customer engineering branches; an OPD sales and customer engineering branch; three FE branches; an IRD sales office; and a Corporate Resident Manager.

Other New York locations include the Systems Research Institute—the only graduate level education and research center in the use of digital computers in U.S. industry. And a new 168,000-square-foot System Products Division plant—ground was broken on April 20—is growing in Brooklyn close by a leased warehouse occupied since 1968.

Perhaps most important of all, IBM people are helping to keep a shine on the Big Apple by assuring that New York's businesses—from banks and brokerage firms to garment manufacturers, television networks, and Fifth Avenue stores—have the modern methods and equipment to survive in what still may be the toughest competitive environment around.

Crazy to live and work in New York? *Un poco loco*, perhaps, as the ads also say. But it's still New York, New York, and like the title of one Broadway musical, still a "Wonderful Town."

NEW YORK NEW YORK

Making it with IBM
in the Big Apple

"This is the broadcast center of the U.S.A.," says WABC-TV Vice President and General Manager Kenneth H. MacQueen, who, while talking to a visitor, never lets his attention divorce itself completely from a row of television monitors tuned to the three major networks.

Like many television executives in the city, MacQueen, who heads ABC's owned-and-operated television station here, started elsewhere. His first job: selling "spot" or local advertising for television stations around the country as an independent sales rep in Chicago and Detroit. He joined ABC in the Chicago sales office.

Why come to the "Big Apple?"

"New York is by far the largest market," he continues. "We have six-and-a-half million TV households here. That's one-third larger than L.A. You could fit two Philadelphias into New York."

He is speaking, of course, not just of Manhattan, although the three major networks are headquartered here, or of the five boroughs that make up the city proper. His station's "major Grade A area," where the signal comes in without those annoying snowflakes, arcs through much of Rockland, Putnam, and Westchester Counties in New York; Fairfield in Connecticut; Nassau and parts of Suffolk on Long Island; and a good slice of New Jersey, where one-third of the channel's viewers are located.

In TV, the name of the game is ratings. The larger the number of viewers that can be "delivered" to an advertiser, the higher the rates he pays. Even a seemingly minor one-point rise in national ratings benefits the network with an estimated \$25-million gain in net income. Local stations, such as WABC-TV, get relatively little income from the networks. But they do benefit from the audience brought in by network programming.

While network sales have increased by 92 percent in the last decade, local sales have soared by 235 percent. The program is really not a television product. What stations have to sell is audience awareness



at specific intervals.

At WABC-TV these days, a large-scale, real-time, teleprocessing system called ABIS, for American Broadcasting Information System, "is becoming the salesman's most valuable marketing tool," comments Paul Kaigan, director of systems development.

"It lets us know what we have to sell; what we have sold; to whom; and on what basis," says John Girvin, project manager of the ABIS project. "It permits management to make better judgments on what they should get from unsold inventory of advertising time.

"The thrust behind the system is to make money."

Stepping to a terminal, Girvin summons onto the screen the schedule for the broadcast day—from sign-on at 6 a.m. to sign-off at 3 a.m. the next morning. Appearing on the screen are not only the names of programs, but the intervals for commercial breaks. "The first break on *Good Morning America*," says Girvin, "comes 10 minutes into the program."

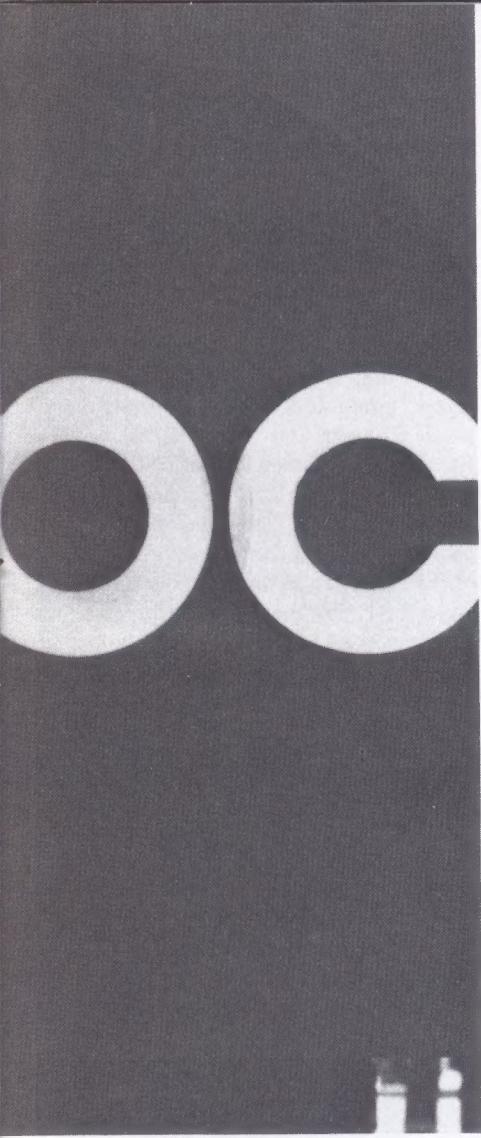
From the screen, he notes that there is still room to schedule one additional 30-second message during the first two-

minute break. By keying in a further code, Girvin finds out who has booked the particular spots during the break. "If you have an advertiser selling paint, you don't want to place him right next to another doing the same thing."

In a further iteration, he summons up the advertiser's contract order form onto the screen. It clearly displays what the advertiser has booked so far under the contract; what is left to be booked; the number of dollars spent and the amount remaining to be spent. Another important element: what viewing times are acceptable to the advertiser. Most want a "rotation." That is, spots coming on at different times during the day or different days during the week to catch viewers with varied viewing habits.

People in WABC-TV's sales service department are using the system to book advertising and schedule it for broadcast delivery. And time salesmen are beginning to employ the system to browse through inventory—to tell what has actually run (last-minute changes are often made) and discover the latest "avails."

The system looks a full year ahead and a quarter-year back. "We have people who



Avenue of the Americas, known to New Yorkers as Sixth Avenue, is broadcast alley, say DPD Sales Reps Aaron Putnam and Merry Ann Tappen, who recently sold two System/370 Model 168s to ABC. Two blocks south, at 54th Street, is ratings-rival CBS, and four blocks farther south, and a short hitch east, is the third major network, NBC. "When you're marketing to the broadcasters, New York is the place to be," the two reps agree.

"Friends ask me how I can stand working in New York. But most of them have never walked out along Fifth Avenue at the height of the business day. The crowds, the color, the opportunities. They are all there," says DPD Marketing Rep Rich McCormack. Last month, McCormack, foreground, and DPD Store Systems Rep Jim Purcell completed installation of an IBM 3653 Retail Store System at B. Altman & Company, linking the Fifth Avenue store with five branches.

have already bought Christmas Eve," says Girvin, typing on the terminal. "A fur company has booked a spot for 7 a.m. Perhaps, it will catch a few last-minute shoppers. The evening is pretty well taken up with finance companies and banks—everyone will need them by then."

The ABIS system, based on two IBM System/370 Model 168s, will be extended to ABC's four other owned-and-operated stations in Detroit, Chicago, San Francisco, and Los Angeles over the next two years. "Management will be able to look at the performance of the entire group of stations or any one of them," says Paul Kagan. "It should allow us to become a lot more competitive."

an entire block diagonally across from the Empire State Building at 34th Street and Fifth Avenue, barely felt the shock. The department store's gleaming brass generators, built circa 1906, made the establishment a beacon of light in an otherwise blackened city. And patrons lucky enough to be stranded inside their favorite emporium continued to ride up and down on pneumatically operated freight elevators, whose shafts are sunk 13 stories below street level into solid bedrock, while those who chose to spend the night, rather than brave the darkness, feasted on tinned hams and other delicacies dispensed from the store's produce department by an always accommodating staff.

The business started as a "Dry-Goods and Fancy Store" by Benjamin Altman in May 1865—the Fifth Avenue store was opened in October 1906—continues to evoke a princely mercantile style that has otherwise largely disappeared from the city. On the ground floor, there are wide aisles, fluted columns, high coffered ceilings and, as *Women's Wear Daily* noted recently, "service extends beyond politeness to friendliness" . . . "When they ask, 'May I help you,' it sounds sincere."

This is not to say that Altman's has ever been rutted in the past. In the 1870s, it started one of the first delivery services, with Mr. Altman himself selecting the high-stepping, matched pairs that drew the custom-made maroon wagons equipped with brass side lanterns. However, by October 1898, the store was already converting to horseless transportation when *Leslie's Weekly* noted that the firm of B. Altman & Co., "have demonstrated that an electric conveyance need not wear an ugly look." In more modern times, sensing the impact of the auto, it was one of the first midtown stores in the country to establish a location in the suburbs. Its White Plains, N. Y., branch opened in May 1930.

In July, Altman's became the first department store in the country to have fully installed IBM's 3653 Retail Store System, with some 525 terminals spread among five branches and about 180 of them in the Fifth Avenue store. The point-of-sale system, tied to two System/370 Model 135s in the main store, will initially be applied to merchandising information. Altman's has a separate financial accounting system. "In the past," says Richard Mullin, Altman's director of management

When a giant power failure plunged most of New York City into stygian darkness in October of 1965, the redoubtable firm of B. Altman & Company, which occupies

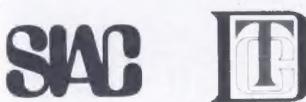
information systems, "we got information from only about 70 percent of our transactions to tell us what was sold. Now, we should get 100 percent accuracy, since we will get data from every transaction, and save a day's time in the process."

The IBM system has already proved itself in the shoe departments of the New York and branch stores where it has been tried on a pilot basis since September 1974. "We've developed a best-seller list," comments Saul Kaplin, merchandising manager for shoes and men's wear, "which tells us the five best-selling styles of shoes in each of our stores. The best-selling style in New York will generally be among the top sellers in other stores—but that's not always true. Our St. David's store outside of Philadelphia, for example, is a great flat-heel store. That's true of an area like the 'Main Line' which is sophisticated and has a lot of outdoor activity."

"Flats usually go with that."

According to the merchandising manager, the system allows Altman's to project five or six weeks ahead, relating one best-selling shoe style to another. "Over a six-week period, we can pretty well predict what we can hope to achieve with a group of shoe styles," he adds.

Perhaps more important, the new system will help to keep Altman's viable in a marketplace where it is heavily committed—each year more than a million dollars is spent renovating the Fifth Avenue store. "Without the point-of-sale system—and its precious by-products," says Kaplin, "it would be next to impossible for us to remain competitive in the New York marketplace."



Climbing up the endlessly winding stone staircase of Trinity Church, a visitor reaches the highest point in the city. The steeple is a dizzying 284 feet above lower Broadway. And from it—one hundred years ago—one had an unimpeded view of both rivers. Across Broadway from the front entrance of the brownstone building, Wall Street begins. It runs due east. And a hundred years ago, it ran past banks, shops, taverns to South Street, where a forest of sailing ship masts rose in the distance.

Because the bankers and merchants and ships were there, Lower Manhattan was—and is today—the mighty financial center of the nation. Eighty-five percent of the trading in listed securities is done there. But the very circumstances that have made New York the liveliest and largest trading center in the world—the need to exchange information face-to-face and by hand—almost killed it less than a decade ago.

For those who made their living on The Street, the Summer of '68 is not the title of a nostalgic movie. It was closer to a nightmare. Trading volume that averaged 13 million shares should have signaled delight. Instead, it nearly spelled disaster. Brokerage house back rooms became literally clogged with paper—despite shortened trading hours; clerks couldn't be hired for love or money; errors seemed to

proliferate in customer statements; and the number of "fails"—the failure of one broker to deliver securities to another within the settlement period—reached record levels. An appreciable number of firms went under.

"In this age of automation," commented *Fortune* at the time, "The Street has conspicuously failed to keep pace."

Not that individual firms hadn't been using computers. "When System/360 came along in the mid-'60s," says Mort Epstein, DPD account executive to the New York and American exchanges, "most major brokerage firms and the stock exchanges accepted computers into the heart of their businesses. But the solutions to the paperwork flow between the brokers, the bank transfer agents, and the exchanges lagged behind."

Today, in contrast, 30-million-share-days come and go—and people in the back rooms go home on time. What brought about the sudden sea change? Although brokers still match trades in face-to-face banter much as they did when a buttonwood tree stood on the site of the New York Stock Exchange 200 years ago, two key application developments have taken place:

- The first was the Continuous Net Settlement system designed and put into effect by the Securities Industry Automation Corporation (SIAC), an industry-owned group that does all of the data processing and communications for the New York and American exchanges. Instead of settling millions of transactions among themselves, brokerage firms typically send their daily transactions to SIAC on a reel of magnetic tape.

There, buy and sell transactions of all the brokers are processed through the SIAC clearance system. After a broker has verified a computer printout of his trades, the transactions are processed further to show his final cash position and whether or not the broker owes or should receive shares from the clearing operation. For example, if Bache, Halsey, Stewart sold 100 shares of General Motors to Merrill Lynch and 200 shares of GM to E. F. Hutton, but bought 150 shares of GM from Loeb Rhodes, Bache would only have to deliver 150 shares plus any money difference to the clearing account. Under the new system, the brokers settle only one



"It's the pace and tempo of the market that make New York exciting," says Mort Epstein, DPD account executive to the New York and American exchanges, who has spent his entire IBM career on Wall Street. Epstein visits Depository Trust Company, the largest custodian of securities in the world. In background, Tom Gross, an IBM advisory systems engineer on the DTC account team.



position with the clearing operation in place of a crisscross maze of transactions with each other.

"The problems of the late '60s brought about tremendous pressures for change," says Robert C. Hall, chairman and president of SIAC. "By merging the data processing operations of the New York and American exchanges and redesigning the clearing and settlement process, we have broken the back room bottleneck by eliminating masses of paperwork."

"We are also moving rapidly toward a truly competitive national marketplace by tying in the clearing and settlement process closely to other markets. Trades made by a New York-based brokerage firm in California are cleared rapidly here while a California firm trading in New York clears its transactions locally, eliminating the need for multiple clearing locations for each firm."

• A second parallel development was the

setting up of the Depository Trust Company (DTC), an organization with user-based ownership. With more than \$90-billion in stocks and bonds in its system, DTC is the largest custodian of securities in the world. More important, most of that stock, which is held in DTC's name, stays put, immobilized, in the depository's vaults. When member institutions trade with each other these days, changes in ownership are made, for the most part, by book entries in IBM computers. No shares change hands.

"We are one of the few companies," says DTC Vice President Thomas J. Lee, "whose basic mission is the computerization of services to its participants. In the four years I've been here, the number of securities physically requested by brokers has been reduced by one-third while the number of securities included in DTC's bookkeeping system has almost quadrupled."

"My banking customers are split between midtown and Wall Street, so I spend my time popping in and out of the subway," says OPD Industry Manager Emil Riendeau. "You'd be surprised how all those stairs keep you in trim. For years, New York banks have had a stuffy image, but they are attracting an awful lot of bright young people these days."



One of the earliest components of the Manufacturers Hanover Trust Company is the tiny Greenwich Bank, which opened its doors on January 10, 1831, on Hudson Street in the heart of Greenwich Village. The rent for the quarters was \$250 a year.

Today, with more than \$28-billion in assets, Manufacturers Hanover—formed in 1961 from a merger of the Hanover

Bank, a large wholesale bank that dealt with blue-chip corporate customers, and Manufacturers Trust Company, an institution with numerous branches that served ordinary New Yorkers throughout the city—is one of the largest in the country. But, despite its size, MH, as it is known, remains intimately concerned with the lives of the citizenry.

It is putting roofs over the heads of New Yorkers in poor as well as wealthy neighborhoods and has gone out of its way to help small neighborhood businesses and minority enterprises—over 33 percent of the bank's employees are drawn from minority groups.

When the largest black-owned office building in New York was put up on West 125th Street in Harlem, drawing business and jobs to the neighborhood, the total \$15-million financing package for the structure was put together by Manufacturers Hanover.

The personal touch is clearly in evidence in the offices of the bank's Trust Division. No cages, no marble floors, no stony-faced lending officers. In fact, a visitor to the fifth-floor offices of the division at 600 Fifth Avenue has to keep reminding himself that he is in a bank at all.

"We are closely involved not only with investing," says Vice President Frank Gibbs, operations manager of the division, "but also deeply involved in people's lives."

In handling a guardianship, for example, a trust officer may be called upon to decide on the right school for a youngster to attend. Or, in supervising a committee ship, one of the bank's officers may travel to an older person's home to see whether adequate physical and medical care is being provided.

In the course of managing the estate of a decedent, an officer is often called upon to help run the business of the person who has died until the business is sold or an effective manager can be found to take over the job.

Another area where the Trust Division has direct responsibility for people's lives is in the setting up and administering of employee benefits plans, often for large corporations.

"We get involved in pension plans for teachers, for unions, for city workers, for self-employed people," Gibbs explains.

Altogether, the Trust Division has responsibility for the safekeeping of \$50-billion in assets. And, of this total, it has direct investment authority over about \$12-billion.

That is, the trust officers have the responsibility to buy or sell or otherwise invest this total.



More than anything else—except for sound judgment—the job of taking care of other people's assets and lives involves accountability.

And this means written reports turned out on a regular basis on dictating equipment, Magnetic Card Typewriters, and other equipment furnished by IBM's Office Products Division.

"Many executives discover they don't need their own secretaries," notes OPD Industry Manager Emil Riendeau, who started his IBM career 27 years ago as a stenographer (he typed his correspon-

dence on a Model A) at 590 Madison Avenue.

For the most part, the Trust Division's clerical work is done in tidy word processing centers, although the bank is moving toward "small work groups" of four or five employees. "They are more dedicated to the point of need," explains Riendeau.

In a word processing center on the fifth floor, a small group of employees takes transcriptions from a bank of dictating equipment tied by telephone to the main floor where the bank's vice presidents and other officers go quietly about their work.



Dun & Bradstreet

The depression of 1837 had been a severe one, most New York businessmen agreed. And, privately, many admitted they had been somewhat too lenient in advancing credit. More than a few had been burned. But the West was just opening up and, if the rampant bad debt losses of previous years could be held to a reasonable level, fortunes might still be made.

With such thoughts in mind, frock-coated merchants began calling at the offices of the newly established Mercantile Agency at Hanover and Exchange Streets near the southern tip of Manhattan. The year was 1841. And the forerunner of Dun & Bradstreet offered the top-hatted businessmen a new service. In its gas-lit interior, they could pore over credit letters, most often drafted by young attorneys, that described the standing of country merchants as far away as Ohio, Michigan, and Illinois.

The firm's agents, according to an advertisement, were carefully chosen for their intelligence, good judgment, extensive information, and integrity. And at least one of them also had a sense of humor. Replying to a credit inquiry regarding a storekeeper in Springfield, Illinois, an attorney named Abraham Lincoln wrote about the grocer and the rat hole that "would bear looking into."

The agency, which became R. G. Dun & Company in the early 1900s and Dun & Bradstreet in 1933, has moved its headquarters office only a half-mile uptown since its early days, with several intervening stops, to an address on Church Street near City Hall.

And although its parent, Dun & Bradstreet Companies, Inc., is today a multi-million-dollar worldwide firm, with a variety of activities from television broadcasting to management consulting, credit reporting remains a highly important line of operation. And it continues to rely, as the advertisement proclaimed, on the good judgment and skill of its business analysts, including some 2,000 reporters and correspondents in the U.S. alone.

Of course, merchants no longer stop by to read the gist of correspondents' letters neatly copied in the elegant script of the day into bulky sheepskin-bound ledgers. In place of the ledgers—2,000 of them were shipped in the early Sixties to the Harvard Business School's Baker Library as a vast repository of business history—D&B is one of the most advanced and adventurous

users of modern computers.

The firm has turned out directories of credit ratings ever since John M. Bradstreet came out with his *Improved Commercial Agency Reports* in 1857. That 110-page opus contained the names of 17,100 business concerns in nine major cities.

Today's four-volume *Dun & Bradstreet U.S. Reference Book*, revised and published six times each year, draws from a storehouse of information on 3 million firms, and is printed directly from tapes generated by IBM computers, including the first IBM 3850 Mass Storage System installed in the Metropolitan area.

"The computer is our factory," says Gordon J. Aubrecht, D&B's vice president, data processing. "We use computers to store information, to update it, to reorganize it, to package it, and to repack it for the varying requirements of subscribers with special interests."

Not only the *U. S. Reference Book*, but a series of other directories is supplied, in whole or in part, from the underground assemblage of computers. There is the *Million Dollar Directory*, listing 42,000 U. S. businesses with net worths of \$1-million or more, and including products, services, sales volumes, numbers of employees, and names of officers and owners. A *Middle Market Directory* provides similar data for firms with net worths between \$500,000 and \$1-million. And there are separate directories for metalworking plants, manufacturing establishments, the apparel trades, and other specialties.

One fast growing area of D&B's business, according to IBM National Account Rep Joe Joyce, is the Marketing Services Division.

This division uses data retrieved from the Mass Storage System for marketing purposes. D&B customers can choose from 27 identifying business facts, known as Dun's Market Identifiers, and run these identifiers against the information on 3 million companies in D&B's business information file to select marketing prospects by industry, location, size in terms of employees, sales, net worth, and other criteria. The resulting information can be supplied to clients in the form of printed punched cards, mailing labels, magnetic tape, and various other media.

Credit Clearing House, the apparel trades division of D&B, offers a special computerized service called the Automated Information System. This service places cathode ray tube terminals directly in the offices of customers from coast to coast for the on-line receipt of credit information.

(Continued on page 23)

"Where else but New York could you have the chance to handle publishing accounts like McGraw-Hill, Dow Jones, and Dun & Bradstreet within the space of a few years?" says D&B National Account Rep Joe Joyce. The Brooklyn-born salesman peers over the top of a clerk's desk at an early D&B credit ledger. Today, much of the information for D&B's directories is drawn from a newly installed IBM Mass Storage System.

In the center, the handful of experienced employees turn out letters and reports, often with snappy blue covers, at the rate of 600 to 800 lines a day.

NEW YORK NEW YORK

Still a 'Wonderful Town'



Mary Ann Hill, Manhattan

Systems Marketing Rep, OPD

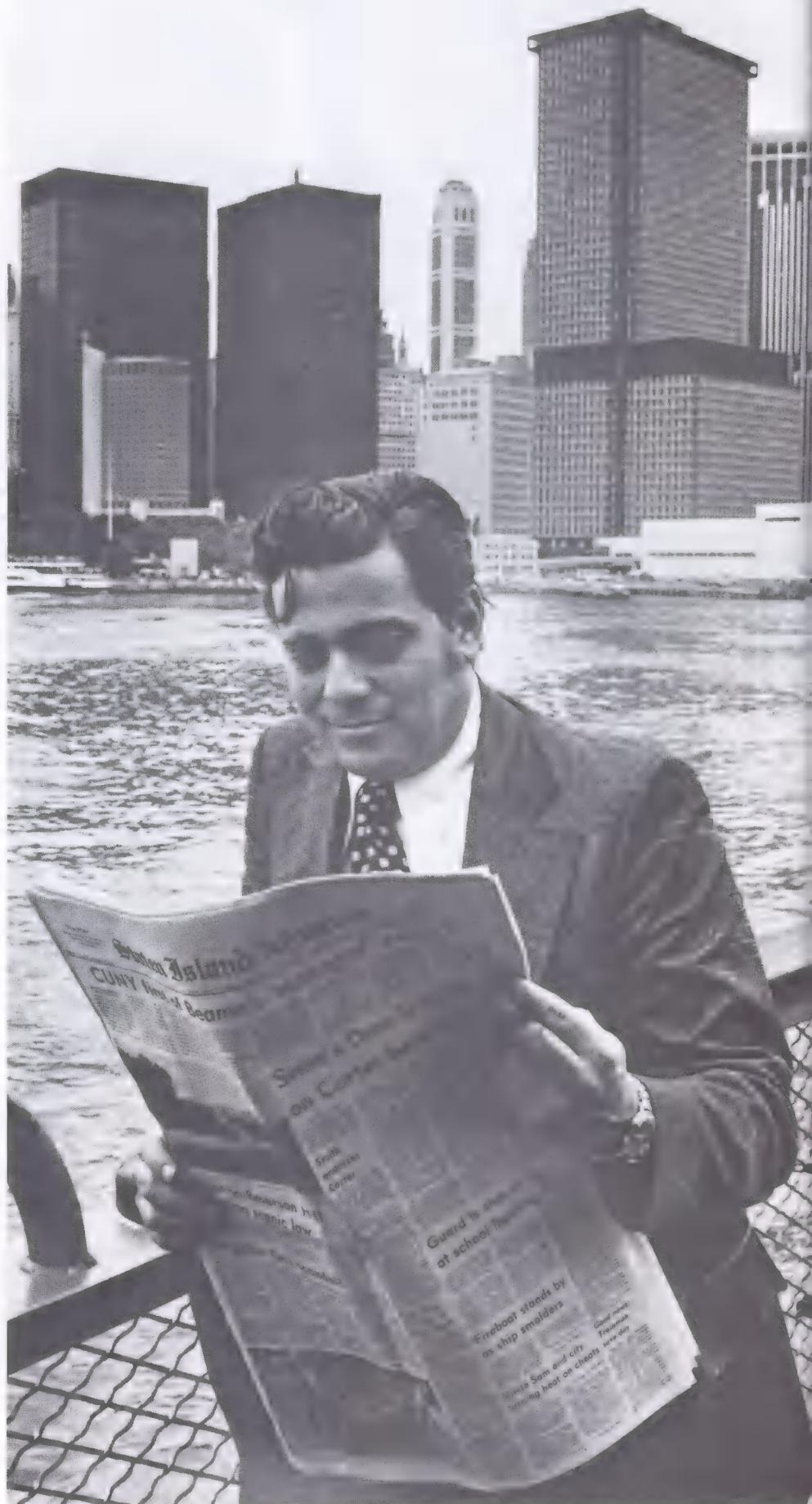
Aside from my job, what drew me here was music. I like to sing. Opera. My coach is a lady in her 70's who lives near Carnegie Hall. I sing privately for parties and with the St. Bart's Players, who meet at St. Bartholomew's Community Club on East 50th.

Living in New York, you know, if you don't have a season ticket to the opera, you can generally just pick up the paper, see what's on, and make up your mind to go that same night.

I like going to the Plaza for tea. And the restaurants. You could try a different one every day and not hit the same one in a year.

With all you hear about New York, it may sound funny, but I've probably been as happy here as any time in my life.

Text by RUTH S. BAKER
Photographed by ERICH HARTMANN



**Carmine D'Avanzo, Staten Island***Customer Engineer, FE*

Let me put it this way: I grew up in Brooklyn, moved to Queens when I got married, then to Staten Island. And I work in Manhattan. So I guess you can call me an all-around New Yorker.

We bought our house on Staten Island 10 years ago and we're still in the same place. It's quite reasonable compared to the suburbs. And since we moved, most of our friends from childhood have moved out here.

We're fairly close-quartered here—but we enjoy people. And our kids have a lot

of friends—there's no shortage of kids on the Island.

People in the boroughs, in general, spend less time maintaining their homes and yards because they're not so big. You can put that extra time in other things. For instance, my wife is taking sociology at Richmond College. It seems that half the wives on Staten Island are taking sociology.

Bill Sullivan, Brooklyn*Account Manager, IRD*

I live in a brownstone—but not in one of those big fancy ones in Brooklyn Heights. Mine is a two-family brownstone, and my mother-in-law lives upstairs.

We have five children and we live in the same parish I did when I was growing up. The children go to the same schools. In fact, I haven't moved more than three blocks away since I was born.

On Sunday, we go to church and go out with our children or have friends over to a barbecue in the backyard. Yes, there are backyards in Brooklyn.

I like working in the garden, planting evergreens and roses. My mother-in-law is big on tomatoes.

I really prefer to live where I'm living because my roots are here.

**Hosea Giván, Queens***Marketing Rep, DPD*

Another IBMer and myself were riding around our neighborhood in Queens. We saw what was happening with the parks. They didn't belong to the children. We thought, what a waste, so we put together a basketball league.

We started about five years ago by calling up IBMers and other guys we knew. The children really rallied toward us. We now have 12 teams of 12 to 15 players, 60 girls as cheerleaders, and 55 adult volunteers. Each child gets a complete uniform, and at the end of the year we give each one a trophy, with larger ones for the winners. We have an anti-drug program, too.

You see, I'm from Gary, Indiana. That's a basketball city. I put a basketball court in my own backyard, with two spotlights for night play. There are always so many children there that I never have to worry about where my children are.

Janet Flowers, Manhattan*Systems Engineer, GSD*

Right now I'm studying for an M.B.A. at Fordham. It's a lot of work. But a lot of fun. The program is for people like myself who have been out in the business world. It's a chance to meet people who have similar as well as different work experiences. Most of the instructors are executives in meaningful positions with companies right here in the city.

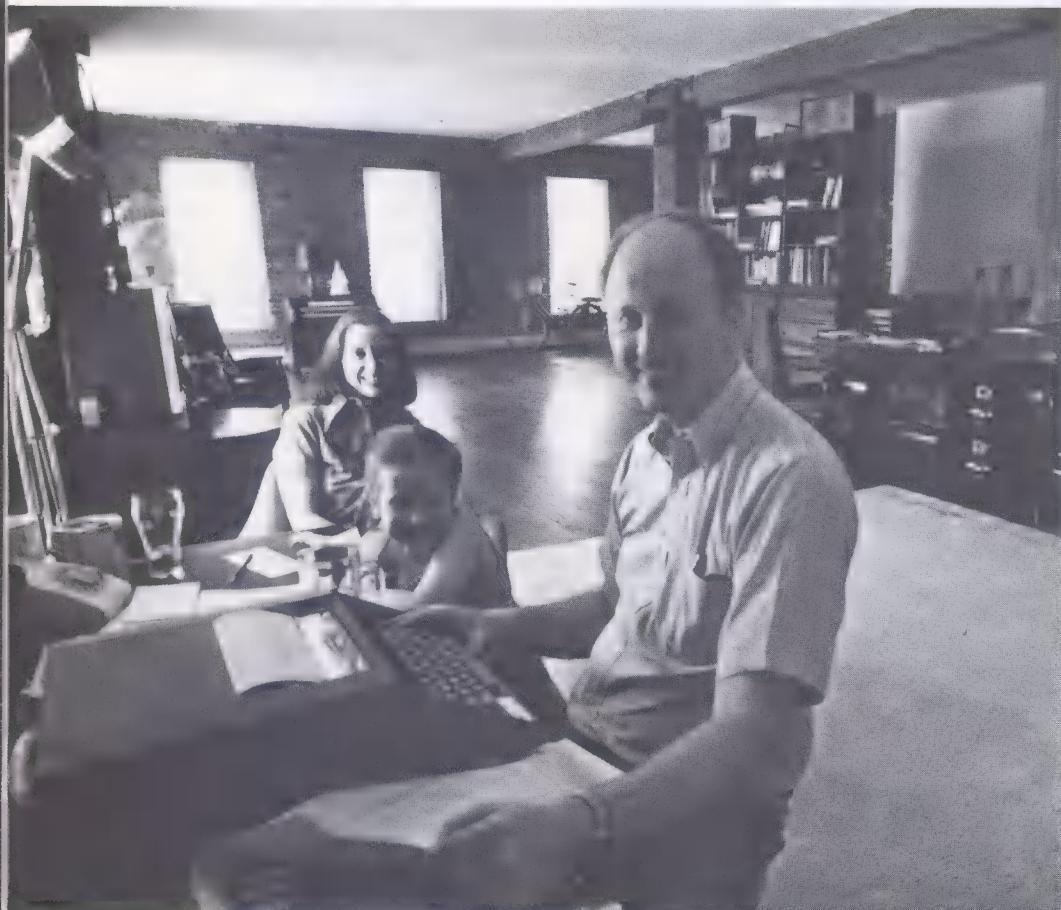
Then, too, I'm active in a number of local organizations here. And I'm dating a very special person. I really enjoy being in New York.

**Maggie and Baird Smith,
Greenwich Village***She—Systems Engineer, DPD*

He—Advisory Programmer, SRI
Our loft is one floor of an old cold-storage warehouse in the Village. When we bought it, it was just 2,800 square feet of raw space. Raw means no plumbing, no electricity, no heating, no windows.

We punched windows through the brick walls and installed wiring. It was like building a house, doing everything but putting on the roof. We hired someone to do the rough plumbing, but put in our own fixtures. We used programming techniques to manage the project. In fact, we ran it with the same kind of flowcharting and scheduling. We had a detailed diagram for everyone who came in to work.

Do we like New York City? People think you make a calculated, mathematical choice when you settle into a place. But that's not the case. It's more a feeling of being at home.





Bob Brod, Manhattan

Industry Manager / Medical, OPD

I love New York City. Aside from the obvious attractions—the cultural things, the financial area, the U.N.—there's so much interesting history that is just not apparent to non-New Yorkers.

Did you know that Turtle Bay, an area near the U.N., was once, in fact, a bay with small inlets filled with turtles? Now it's a prime restaurant area with some of the most architecturally attractive 1860 brownstones in the city. And New York Hospital, on East 68th Street—it's the second-oldest in the country. It was chartered by King George III in 1771.

Near Columbia Presbyterian Medical Center, which is one of my accounts, there is an old Roman-style viaduct that used to bring fresh water to the city over the Harlem River in the 1850s.

I've traveled a great deal. But all that travel only makes me appreciate more what I have here in my own backyard.



Carla Grieve, Greenwich Village

Systems Engineering Manager, GSD

When my husband and I moved to New York, we lived on 57th Street. Halfway between Tiffany's and Carnegie Hall. Living there in midtown, I felt I had to be well-dressed just to go to the grocery store.

We're glad we moved to the Village. It's much more casual. There are fabulous stores everywhere. A French bakery. A Mexican grocery. Italian meat stores. Everything's close at hand. Even my office. When they had an unbirthday party at our daughter's school for all the kids who have birthdays this summer, I was able to get there and be with her on my regular lunch hour.



IN BRIEF

New man on the CMC

"Anyone who'd been in my job the past seven years, with the constant flow of new products, would just have to be turned on by the dynamics of it all. So it was with mixed feelings that I left the Office Products Division. But this new job has got to be the greatest opportunity for anyone who enjoys and wants to be involved in all areas of the business." That's how Bart M. Stevens, IBM senior vice

president, views his personal milestone of July 1, when he joined the Corporate Management Committee, succeeding Warren C. Hume, who recently retired. The CMC consists of IBM Chairman Frank T. Cary, IBM Vice Chairman Gilbert E. Jones, Senior Vice President Robert W. Hubner, and Stevens. Its functions are to establish companywide objectives and corporate policies and to approve operating plans.

As the first member of the team to come from OPD, which he headed for seven years, Stevens feels that his new post is "great recognition for OP

worldwide and its future potential." His new responsibilities, along with his CMC membership, include the Corporate operations staffs—marketing, manufacturing, service, and engineering. "I've been in a line capacity for the 30 years I've been in the business," Stevens says, "and this is my first staff assignment. But as I told the OP crew when I was leaving, I'd always remember that the staff's function is, fundamentally, to support the line. Staff or line, we all ought to keep our eye on a prime objective of the business: that is to sell somebody something."

Think metric

The signs are unmistakable as a crocus in spring. New green and white markers, popping up along the nation's highways, that measure distances in miles, all right, but also in kilometers. Sure evidence that metric is now the law of the land.

It's being officially adopted (the President signed the bill in December) as the preferred U.S. system of measurement.

But conversion will be gradual, and not as difficult as one might suppose. Particularly if you learn to "think metric."

Out this summer, the joint work of IBM's Science Research Associates, which developed it, and the Associated Press, which published it, is *An Every-day Guide to the Metric System*.

The price is right—\$1.25—and pre-publication orders, according to SRA, are pouring in. Notes SRA President Richard A. Giesen in the preface to the 64-page booklet: "While your children are learning to use metrics in school, we hope" to "help you do the same with ease at home . . ."

Nice company

"It's a very good feeling. I'm rather awed to be included in such a list."

IBM Fellow John Backus' reaction to the letter from the National Science Foundation was as unpretentious as the jeans he favors for all but the most formal occasions. He's among 15 scientists who have been selected by President Ford to receive the annual National Medal of Science, the nation's highest award for outstanding achievement in science and engineering.

The medal's first recipient, back in 1962, was the late rocket pioneer Theodore von Karman. Others, over the years: Linus Pauling, Vannevar Bush, Norbert Wiener, Igor Sikorsky, Harold Urey, Albert Sabin. Backus is the first person from IBM to be so honored.

In the fall—the date hasn't been set—Backus will fly from California, where he keeps an office at the San Jose Research Laboratory, to join Cal Tech's William H. Pickering, director of the Jet Propulsion Laboratory;

Stanford University's George B. Dantzig, an authority in mathematical programming; and other mathematicians, chemists, physicists, and scientists, for a formal ceremony at the White House.

Backus, early, recognized the need to widen computer accessibility by facilitating the programming task. He is cited for his pioneering contributions to computer programming languages, especially FORTRAN. More than 20 years ago, he guided the group that developed it. Designed for the 704, FORTRAN could be easily understood by scientists everywhere; and today, despite the proliferation of subsequent higher level programming languages, FORTRAN remains among the top 10.

What's Backus' current interest? "I am trying to develop a programming language," he says, "that will help programmers think at a higher level. Present languages force you to think too much in terms of the smallest parts of the data. We hope to be able to do better than that."

Students' choice

The setting is the University of California at Berkeley. June commencement exercises are under way, honoring nearly 1,000 School of Business Administration students who have earned bachelor's, master's, and doctoral degrees. They listen as their choice for commencement speaker, IBM's Gordon Gartrell, urges them to "Dive into your work, and your life . . . Cling to your ideals. They have a real place in the realm of pragmatism." Gartrell is manager of market support for the Data Processing Division's Northwestern Region, headquartered in San Francisco. He also teaches a popular course for Berkeley M.B.A. candidates. A graduate of the University of Pennsylvania's Wharton School of Business Administration, Gartrell was particularly moved by the students' request that he speak at their commencement. "I look upon your invitation to share this occasion as one of the highest compliments I have ever received," he said. The response was an ovation.





Who says nobody is perfect?

It was as if the Montreal Canadiens had just won the Stanley Cup in sudden-death overtime. The roar from 18,000 throats in the Forum was that loud. Reason for all the din, however, was a teenage girl from Rumania, who, with dark ponytail flying, had just won a gold medal as all-around champion in women's gymnastics at the XXI Olympiad in Montreal in July.

To do it, Nadia Comaneci had racked up her fourth and fifth perfect scores of 10 on the balance beam and uneven parallel bars. In all, she went on to amass seven perfect scores and three gold medals. No gymnast in the history of the Games had ever been perfect so much as once, and although the IBM "Result System" had been programmed for such an unlikely eventuality, the scoreboard system was not prepared to flash the four digits of "10.00" and had to be redesigned.

For the entire 16 days of the Games, the IBM system

furnished information to the press and the public. More than 100 terminals, each equipped with a display screen and printer, were linked to two off-site System/370 Model 145s. Starting lists and results were entered through the terminals, then fed to the computers for storage and dispatch to other terminals and printers located in press, radio, and television centers.

The system was also used to produce the Olympiad's official results book. It is a volume studded with the names of new champions and, of them all, none looms larger than the 5-foot 86-pound 14-year-old from Rumania, who said quietly of her performances, "I think I've done well."

EF IN BE

Tailing that Loch Ness monster

All summer long, the Jet Propulsion Laboratory at California's Institute of Technology has depended upon its IBM System/360s to clarify Viking spacecraft photographs from Mars. Interestingly enough, those same 360s figured prominently in another summer expedition —this time to the bottom of Scotland's Loch Ness, in search of Nessie, that most elusive of lake monsters.

Last fall, Dr. Robert H. Rines, of Boston's Academy of Applied Science, and Dr. George R. Zug, curator of reptiles and amphibians at the Smithsonian Institution in Washington, puzzled by pictures taken on previous 1972 and 1975 expeditions to the peat-darkened loch, sent the photos to the Jet Propulsion Lab for computer enhancement. JPL has gained an international reputation for its work with satellites and space images.

Using a System/360 and illumination and filtering techniques, Alan Gillespie, a lab computer expert, improved the photographs to the degree that

a windshield wiper improves the vision through a rainy windshield. What they show may or may not be portions of a large animal, but says Gillespie, "we certainly made the pictures better."

The new visibility has renewed scientific interest in Nessie. In June, an expedition, sponsored jointly by the Academy of Applied Science and *The New York Times*, set out for Scotland, complete with strobe lights and underwater cameras.

Subsequent difficulties with equipment have failed to dampen spirits. As the *Times* noted at the outset, the task may take two or three weeks, or all summer, or "success may be impossible this year with the means at hand."

Which may be just as well. "If they sent me any new pictures now," says Gillespie, who did the work as a public service, "I probably wouldn't get around to them for a couple of months. With Viking taking over the computers there's just no time available."

A place of their own

Programmers, those highly disciplined problem-solvers who tell a computer what to do, are accommodating people. They have to be. They're usually found in buildings built primarily for other folks.

This year, for about 2,000 programmers and support people, this is scheduled to change. In the rolling Santa Teresa foothills south of San Jose, Calif., there's a handsome

cluster of multicolored, aluminum-covered buildings over halfway to completion. It is the Santa Teresa Laboratory, IBM's first structure built exclusively for programmers.

When the building is finished, there will be over half a million square feet of floor space designed especially for the needs of General Products Division development programmers currently scattered among diverse locations in California. They will move to the new building under the direction of Jim Frame, GPD director of programming development.

Meet the press

Frank Cary does it often. For IBM's chief executive officer, it's an important part of the job.

Four times in one week last April, IBM Chairman Frank T. Cary found himself face-to-face with editors and reporters in a series of free-wheeling discussions on business and the press.

First, an invitation to lunch with the business editors of a major daily newspaper. Three days later, another informal lunch with wire service news executives. The following evening, a session of give-and-take at a seminar for journalists on leave to study at a major journalism school. Finally, an appearance in Washington before the American Society of Newspaper Editors at their annual meeting, as a member of a panel on "Business and the Press."

Wryly, he told the nation's editors: "For 24 of my 28 years in IBM, I was not very involved with business journalism. In the past four years, I seem to have made up for that!"

It was an unusual week, to be sure. But it tells a lot about Cary's determination to see that IBM is fairly represented in the press—and to do what he can to improve the dialogue between the press and American businessmen.

He takes seriously his role as chief spokesman for the company.

Asked by *The Wall Street Transcript* in June what were the major claims on his time, he listed three (in addition to the large amount of time he spends on employee matters): the development of "executive resources" to ensure the right kind of management for IBM's future; "strategic planning" to bring the right technologies and products on-stream on time; and "the management of the external affairs of the company, in terms of the various publics we deal with."

Cary's calendar for the past 18 months documents this commitment: 22 press interviews, most of them face-to-face; 8 field visits, with press conferences worked into the schedule; 6 luncheons or other informal sessions with editors and reporters; and 13 letters-to-the-editor to comment



on articles about IBM or to challenge what was said.

Why this emphasis?

IBM generally has good relations with the nation's press.

But "without question, public trust in business generally is lower today than it has ever been before," Cary observes.

Scandals involving some businessmen have tarnished all business. And the press, especially since Watergate, has become more aggressive as the watchdog of all institutions, including business.

Then, too, there is IBM's prominence as an international company, its success in the marketplace, and the lawsuits that have followed in the wake of that success. The long-ago "low-profile" days when IBM rarely appeared in the news columns are gone forever.

Most of all, there is Cary's belief in the company's right to a fair shake. IBM, he insists, has competed fairly and ethically in the marketplace, and he feels the company has a right to be proud of that success, to speak out—and to correct the record if that performance gets misrepresented or distorted.

As a result, the chairman has been widely reported and quoted on a variety of subjects, all the way from business ethics, privacy, data security, and employment policies and retraining, to South Africa and East-West trade. As head of one of the most far-reaching of all international companies, his views are frequently in demand on international trade and the state of the economy.

Questions come to him on a daily basis, and he takes care to make himself readily available when matters pertaining to company policy are involved. And when time is required for an explanation of more complex issues affecting the company, he alters his schedule to make time for interviews and discussion. For Cary has become familiar with the pressures and the deadlines under which the press works and

(Continued on page 22)

Business and the press

To these distinguished journalists, the same three questions: How good or how bad is business reporting? What's missing and why? And what can be done to make it better?

Elie Abel

Former NBC and New York Times correspondent, now dean of the Graduate School of Journalism, Columbia University

The business and financial pages of our general circulation newspapers are, with a few honorable exceptions, the most disgracefully neglected sector of American journalism. This holds true even in this extraordinary period when the state of the economy has become a matter of intense personal concern to many millions of Americans.

Why? For years, the best and the brightest journalists have not, as a rule, been assigned to the business pages. And those who are, all too often lack the understanding, the knowledge, and the time to make sense out of the events they are reporting.

The problem does not, in my judgment, have its roots in antibusiness animus. It is rooted in ignorance, in a stubborn attachment to routines of thinking about economic news as highly technical stuff that is hard to make interesting, or, even intelligible, for the ordinary reader.

Business is no less responsible for this climate of ignorance. For too long, it has clutched its mysteries and its secrets to its bosom, elevating to command responsibility the tough executive who has no time for such foolishness as talking to reporters. To that extent, business must shoulder much of the blame for its credibility problems.

What can be done to turn things around?

Certainly, specialized training for reporters can help mightily. An encouraging number of editors and publishers at long last have come to understand the need for programs of this kind. The mysteries that surround economic decision-making must be stripped away. That is the purpose of the Walter Bagehot Fellowship Program for professional journalists at Columbia University and a

similar program at Princeton, both inaugurated in 1975.

On its part, business should cultivate a welcoming attitude toward press inquiries—and not expect the reporter who is granted an interview to clap his hands in gratitude. That is not his job. Understand that the reporter must retain a decently skeptical attitude if the public, in turn, is to believe him.

Companies should explain what they are doing and why. They should lay out their particular problems. Describe how they are dealing with them. And by all means, answer questions fully and honestly—the greater risk lies in evasion.

If profit is widely misunderstood by the public, business might also help itself by devising more reliable yardsticks to measure its own performance. I have heard it said that profit figures are inherently misleading because they are expressed in inflated dollars while charges budgeted for depreciation of equipment reflect earlier and lower price levels, not true replacement costs. But whose fault is it if corporations go on playing the percentage game in reporting their profit increases, quarter after quarter and year after year?

They can't have it both ways.

"Better to light a candle," as John Kennedy used to say, "than to curse the darkness."

Abel



Louis Banks

Former managing editor of Fortune and editorial director of Time Inc. publications, now adjunct professor of management at the Sloan School, M.I.T.

Beyond any question there has been a consistent and important improvement in the journalism of economic policy and public affairs. Partly this is the happy result of bread cast upon the waters by Arthur Okun, Walter Heller, Neil Jacoby, George Shultz, and others like them who, while in the government, added to their heavy duties as economic policy makers the chore of trying to educate dozens of newsmen in the ABC's of economic theory. Partly we have become more literate because the spiritual children of Paul Samuelson and John Kenneth Galbraith have come of age and into power—and while the theories and conclusions of one or both of them can be argued, we cannot deny that they both know how to make economics personal and exciting, and therefore relevant. And therefore news. Thirdly, the happy state of affairs in economic reporting has come about because some very good editors have worked hard at learning, and because some very good economists have moved out of the university and into journalism.

There has been progress, as well, at what we might call the institutional level—the reporting on those basic building blocks of economic performance, the corporations. Over the last quarter-century we have seen the flowering of business journalism, and it seems to be getting better and better. My friend and mentor, the late Henry Luce, would be dazzled by the editorial vitality of not only *Fortune*, but *Business Week*, *The Wall Street Journal*, *Industry Week*, *Forbes*, the business sections of the weekly news-magazines, and the Sunday business sections of a few key newspapers.

The bad news, though, is in the area that we might call general-assignment reporting of business. The processing of



Banks

stories that make the front page, or 60 seconds on network television—the daily brush between the run-of-the-mill reporter and the run-of-the-mill businessman with the latter caught in the glare of the spotlight. Here is where the damage is done. Here is where we are fed a daily diet of authoritative ignorance, most of which conveys a cheap-shot hostility to business and businessmen. Here is where the nation sees a persistently distorted image of its most productive and pervasive activity—business. The fact is that reporters and editors in the general media are woefully ignorant of the complexities and ambiguities of corporate operations.

Despite this sorry state of affairs, it is just possible that business and journalism deserve each other. Why? Because something menacing has been added to the equation over the last year or so—and is still being added—which makes me cherish the independent, critical coverage of business in whatever form.

That "something" can loosely be described as the "post-Watergate disclosures" about corporate custom and practice. The net message of the headlines is that chief executive officers of some of the nation's best known corporations have tolerated practices that range from illegal domestic political payoffs to subordination of foreign governments, to secret Swiss bank accounts and laundered funds, to colossal short weight in grain sales, to deceiving boards of directors, and so on.

So how does business respond? A tiny few businessmen mutter that there's nothing new about all this, and it's just the fault of the media for stirring things up again. Nevertheless, the responsible business community repudiates this style of doing business. But this attitude has become the world's best kept secret.

(The comments by Louis Banks are based on a paper prepared for the 1975 John Hancock journalism awards presentation in Boston.)

Think

William F. Thomas, Jr.
*Executive vice president and editor,
Los Angeles Times*

Press reporting on business has been spotty—but is fast improving. The major reason is that business and the economy in general have become major news stories in recent years. And, in trying to report on and interpret these areas, newspapers have become more aware of their deficiencies.

The most responsible papers, and those with the resources to work with, have been paying more attention to all the elements involved in economic reporting. This may mean hiring better editors and reporters or more basic structural changes. For example, we took our former Washington bureau chief and made him assistant managing editor for economic affairs. It was more than a title change. We also put at his disposal resources from our other staffs so that he could pursue better coverage.

The problem in the past has been that not enough people on newspapers have had a realistic idea of the internal workings of business. By that, I mean people who cover general assignments as well as those assigned to the business or financial news. That's why businessmen often get very annoyed with reporters who seem not to have an understanding of the basic elements of the business world—who ask stupid questions and get the answers screwed up.

Businessmen have also been to blame. They still have a tendency to be too defensive. And we still don't get honest answers in areas where I think we're entitled to them—and where we get honest answers from other elements of the news scene. Of course, I don't expect the president of a company to damage his firm in any serious way. No one can expect an answer if it's going to have a seriously harmful effect. But, too often, it's just a case of business not wanting any publicity at all if the

story might put it in even the slightest unfavorable light. The way that this manifests itself is that the people in a business who do have the answers are often just not made available.

To improve things, more newspapers ought to be aware that business is not always given a fair shake. This happens either because some newspaper people do not hold an entirely unbiased view of business or they simply have no real knowledge of the way business works and the way it fits into the social pattern. The part of the press which has this failing should recognize it, as well as increase its total effort.

So far as business is concerned, people in companies should realize that the press is asking questions in behalf of the public which is, presumably, interested in the answers. If they want these answers to be reasonably informative and honest, then they've got to come forward, within reason, with information that will enlighten rather than befuddle the public. Too often, business uses press agents as shields when they should serve as an avenue to the right source.

In general, I'm encouraged. Business and the press are moving in the right direction. The improvement is discernible.



Thomas

(Continued from page 19)

aware of the need to do all he can to help reporters and editors understand the intricacies of the business and its technologies. "Unless we make a genuine effort to work with them and explain things to the best of our ability," he observes, "we have no one but ourselves to blame when things go wrong."

Nevertheless, things occasionally do go wrong in the relationship. Some of these can be blamed on an overly cautious approach by IBM. Others result from carelessness on the part of the writer or misleading information from other sources. And when this happens, Cary steps up quickly to bat with a forthrightness that can sometimes be blunt. ("How ridiculous can you get?" he wrote to one trade editor about a scurrilous article that plainly got under his skin.)

On the other hand, Cary told the American Society of Newspaper Editors: "I believe the American press has a special place in our system—a place which I would defend against anyone who would hobble or muzzle it.

"I believe business must be more open and responsive with the press—to explain its failures, as well as its successes."

He adds that this, in turn, imposes a special obligation on the press to improve its mastery of the subjects of business and economics and add more professional expertise to its reporting.

With this in mind, IBM has lent its support to a Columbia University program to provide fellowships for working journalists wishing to study business and economic reporting. Known as the Walter Bagehot Fellowships, they provide stipends for, currently, ten journalists to spend nine months at the university. IBM is one of six contributors to the program.

"Ours is a complex company in a complex industry," says J. R. Young, IBM's director of communications at Armonk.

"Most reporters work hard at mastering the complexities; they want to be fair and by and large they do an excellent job.

"If things don't always come out perfectly, that's not surprising—especially under pressure of deadline. One of our main tasks is to help them get the facts straight."

That means responding rapidly to the hundreds of press queries that pour into Armonk. They range from routine questions about IBM's employment policies to offbeat questions such as the one from a magazine that wanted to know what the chairman eats for breakfast.

Reporters' deadlines are met in 98 percent of all queries—no small feat, since the more difficult questions may involve research with several different sources for an authoritative answer.

I believe business must be more open and expansive with the press—to explain its failures as well as its successes.

—Frank T. Cary

This process has proved useful to the company. It gives a new perspective to routine practices.

"Within the company, we're continually reviewing our practices, asking, 'Is this right? Does it make sense?'" says Cary. "The press has been helpful in sharpening those questions."

Armonk Headquarters deals with corporate questions and matters of company policy—organizational, financial, and legal questions, for example. There is equiv-

alent or even greater activity in the subsidiaries and division headquarters, where most of the marketing and technical questions are handled, and where products are announced.

In addition, the divisions and subsidiaries cooperate in keeping the press up to date on on-going changes within the industry.

There have been, for instance, 11 major press seminars in the United States in the past 18 months.

The seminars last one day and give up to 30 journalists a chance to hear about developments in technology, privacy, data security, from both IBM and outside experts.

At La Hulpe, Belgium, last March, some 50 leading journalists from major European newspapers and magazines heard presentations by Ralph Gomory, IBM vice president and director of research, and the managers of IBM's research centers in Yorktown Heights, San Jose, and Zurich.

Along with all this press activity is a parallel effort to make sure that IBM employees, too, are kept informed. Through the companywide bulletin boards, employees get late news as soon as it can be disseminated, often before it appears in the press.

Underlying all this activity is Cary's strong conviction about the importance of good communications to the future of our society.

"The plain fact is," he told the American Society of Newspaper Editors, "that the future of our economic system rests as much with you in journalism as with us in business."

"The corporation exists by public consent. And you are the day-to-day intermediary to inform people of what they are consenting to."

"If you as the intermediary are informed, objective, and professional, no one in business can honestly criticize your reporting—however tough it might be." ■

(Continued from Page 11)

"We can give customers information that can help them decide whether or not to ship," explains Gordon Aubrecht. "When they have a buyer in the office, they need an instant answer."



Outside on Seventh Avenue, there is the usual hubbub. Pushcarts and racks loaded with coats and dresses struggle to get through teeming lunch-hour crowds. Streets are choked with trucks loading and unloading. The upper stories of loft buildings are jammed with cutters, jobbers, piece-goods makers, buttonhole sewers—you name it. It is New York's Garment District—the "rag business"—which takes up a good stretch of Manhattan, from 23rd to 42nd Street, and Park Avenue South, westward five blocks to Seventh Avenue.

On 39th Street, a few steps west of Seventh Avenue, the third-floor offices of Anne Klein & Company, the high-fashion firm, appear to be an oasis of calm and elegance in a center of confusion.

Is it the same world?

"We are in the *same* business that everyone else is in," says Dexter Levy, the executive officer of the company. "Our manufacturers are in the Garment District and the rest of the five boroughs. Buyers come here from all over the country. Saks, Lord & Taylor, Bergdorf's . . . the leading stores are in New York."

"New York is the center of the U. S. fashion world. One of the reasons we are successful is that all of our major functions are here. That gives us a little edge that helps make us the best."

It is an unseasonably hot and humid spring day. But already the fashion firm is getting ready to ship its fall line. "Fall is nearly half our business," says Levy. "Fall clothes are more expensive, and there are more items to choose from. You coordinate a blouse, a blazer, a shirt . . ."

Only two weeks before, the "Fall Opening" had taken place at the Winter Garden, a mammoth theater at Broadway and 44th Street. The production, staged by Hal Prince, had borrowed actors and sets from the musical *Pacific Overtures* running at the same house. All 1,400 seats were filled. And now the buyers have returned to place orders. In a nearby showroom, some write the orders on long forms while the firm's sales people show them racks of coats and dresses. A model glides in, whirls about, and disappears.



Clearly, the firm, named for the late Brooklyn-born designer, has cut a distinctive niche in the fashion world. Anne Klein elevated sportswear looks to the level of high style and packaged her designs in interchangeable parts that can easily be put together in a finished look—a continuity that is carried forward today by the firm's designers.

The impression is that of a solid business—one that knows where it is going. So the words of President Frank Mori take a visitor by surprise. "In this business, you are only as good as your last line," he points out. "We are either right or wrong. And, because we lead others in design trends, it doesn't do us much good to know what *others* are doing. More often than not, other designers will feed off the colors our designers choose."

How to computerize a business as ephemeral as a woman's taste in clothes?

"Until recently," says Levy, "the garment industry hadn't been able to afford computers. Unlike some other industries, such as steel or chemicals, we are not heavily capitalized."

"When I walk out of my office at 2 Penn Plaza onto Seventh Avenue, I'm right at the edge of the largest and most exciting garment district in the world. It's a good location since a lot of my work is prospecting—knocking on doors," says GSD Marketing Rep Jim Cody. "There's really a lot to learn. You have to think in terms of styles—and seasons. It's becoming a surprisingly good business for IBM. One that's just beginning to use computers."

"There are no bricks, no mortar. You only make what you get orders for—and you have to finance that by factoring your receivables."

Opening the way for computers, in a field where management has often been based on intuition, is the advent of cheaper technology and tailor-made programs for specific applications.

"We use our System/3 for billing and to coordinate all of our garments *before* we ship," says Levy. "We have to keep track of what stage our manufacturers are at and where our goods are. When you are selling coordinated sportswear, you can't send a customer shirts before skirts." ■

The Bard on telephone manners



William Shakespeare, it's safe to assume, never saw a telephone. But had he lived to experience Mr. Bell's invention, this most empathetic of poets might have reacted much as we do. Faith, 'tis an instrument that, on occasion, doth make laggards of us all. Here, freely interpreted, is what the gentle Will might have had to say about some of our lapses in telephone courtesy and use.

Doth he hear it? No. It is insensible then?

Answer promptly and pleasantly.

Speak the speech, I pray you . . . trippingly on the tongue.

And for added clarity,
speak directly into the receiver.

It is the disease of not listening, the malady of not marking, that I am troubled withal.

Take messages carefully—
especially if the message requires action.

I cannot tell what the dickens his name is.

If you don't hear a name distinctly, ask the caller to repeat it or spell it out. Also, be sure to give your own name when you make a call.

Be thou familiar but by no means vulgar.

Familiarity can be overdone.
Unless personally acquainted with callers, avoid first names.

Hold, enough!

Ask if it's convenient to wait before placing a caller on hold.

Romeo, Romeo!
Wherefore
art thou
Romeo?

If you are away from your desk,
arrange for telephone coverage.
If out of the office, leave a number
where you can be reached.

A little fire is quickly trodden out, which, being suffered, rivers cannot quench.

The call may be from a displeased customer; make sure it gets to the right person promptly. Remember, you are the IBM company to an outside caller.

Good faith, I am no wiser than a daw.

Maybe so. But isn't there someone else who can help the caller?

The better part of valor is discretion.

Be careful not to give out confidential or sensitive information. If you are not sure who the person requesting information is, it is safer to take the number and call back.

This music mads me; let it sound no more.

Answer that unattended phone. You will spare the nerves of the other people in the department.

I dote on his very absence.

Your neighbor may be away. But his or her phone still needs to be answered.

So shines a good deed in a naughty world.

Answer your own phone if at all possible. That's a good company practice, and people appreciate it.

Being wanted, he may be more wonder'd at.

Not so. If you have to have a call placed for you, it's good form to be on the line when the other person answers.

You pay a great deal too dear for what's given freely.

Long distance calls are costly. Use the Tie-Line, if available. WATS line service is also cheaper than dialing directly.

No reckoning made, but sent to my account.

Except for emergencies, save personal calls for your home phone.

He draweth out the thread of his verbosity.

Telephone courtesy includes a respect for other people's time. Plan what you are going to say before making the call.

—GEOFFREY D. AUSTRIAN

National Computer Conference

Where does one go to catch a bit of history? Dive up on computer history! Hear experts debate the future? Toy with acres of terminals and minicomputers? And perhaps buy a painting or two?

Why, to the National Computer Conference, of course, held this year in June in New York City's Americana and Hilton Hotels and in the Coliseum.

Sponsored by the American Federation of Information Processing Societies (AFIPS), the annual Conference is also the work of hosts of industry volunteers. Program chairman for 1976 was *ibm*'s Dr. Stanley Whitford, of Gaithersburg, Md., who, with Conference Chairman Dr. Carl Hammer, spent two years in the planning, to assure that on the occasion of its 25th anniversary the gathering would "set standards of excellence."

The result was a rich smorgasbord of 125 full and half-meetings, led by panels of six times as many field and marketing speakers —many of them from *ibm*. Among other things they discussed policy questions (among them: think tanks), talked shop about multiprocessing and symbolic testing, explored ways in which the computer can help the physically handicapped,

On hand as an honored plunger was retired *ibm* Vice President John C. McPherson, first Conference chairman; new Vice President S. O. Evans, who heads the System Communications Division, claimed an international session on 25 years of computer development. Past member Dr. Helmut Zembell, an *ibm* Fellow and the director of the Vienna lab, cited the contributions of Central Europe.

Others, including *ibm* Fellow Dr. Harlan Mills, and Patricia Guldberg of the IBM Thomas J. Watson Research Center, talked about the future of software.

Between sessions, conference-goers gorged through some 300 exhibits in the Coliseum or stopped by the student computer fair. The show-off of the day exhibit was the company's new design for computer communication, called Systems Network Architecture (SNA). Highlighted were eight different types of terminals, sharing a single telephone line to a System/370 at 309 Third Avenue.

Although the first prize at the student fair went to a ninth grader for a computer model, no runner-up in imagination was sixth-grader Leslie Joyce Heller, daughter of an *ibm* Poughkeepsie employee, who gave her ballet interpretation of how computer symbols act when ununited.

Toward week's end, the graphic arts exhibit held a Dutch auction. The auction's most popular piece of computer art, a red and blue bird that looked well as a bird's wing, was bought by a data processing manager who wanted it for his computer screen. ■

New products

Teaming up

Office Products and General Systems get together on the new Word Processor/32

OP introduces a new ink-jet printer capable of up to 92 characters per second

Ink-jet printing is not new. The refinement that OPD engineers in Lexington have brought to this field of fluid dynamics, is. Scientists throughout the corporation invariably describe it as very fine engineering. Says one: "Many of the new products that we develop require a change here, a change there, but they're not all that fundamentally different. The 46/40 involved a lot of very clever work."

At the project's peak in development, as many as 70 to 75 mechanical, electrical, materials, chemical, and electronic

In June, the company announced two new products that could well put it a quantum leap ahead in the development of technology for office systems.

If the infant communications satellite industry fulfills its promise to dramatically reduce transmission costs, office systems, ranging from single stand-alone typewriters to large computers, may someday enable even the small business executive to have his or her words communicated into high-quality printed copy, within minutes, at locations halfway across the world. "In addition to their present appeal," says Office Products Division Product Marketing Manager Al Brooks, "our two new IBM products could be a part of that picture. With this new equipment we could well have crossed the threshold into a new dimension of office automation that's going to be limited only by the size of our imaginations here in IBM."

The products: a silent, high-speed

circuit design engineers at the Lexington lab "basically lived together" with problems that time and again tested the limits of their collective skills. "You get to the point where you think there's no way out," says Mike Carmichael, an OPD electrical engineer, "but you always return the next day and try again."

The principle involved—that a stream, under pressure, will eventually break up into tiny drops—can be simply illustrated with water and a garden hose.

But, transform the water into ink. Pump it, under pressure of 40 pounds per square inch, into a nozzle. Vibrate the nozzle head at the rate of 117,000 times a second. Shoot the ink through an opening one-half the diameter of a human hair, at 730 inches a second. "Program" each of the



by Claire Stegmann

printer from OPD, using new exclusive ink-jet technology, and a new computer program product enabling the popular GSD System/32 computer to function as a powerful and versatile word processing system.

■ The IBM 46/40 Document Printer uses an unusual technology (*see below*) and a special paper-handling capability to produce documents and envelopes of correspondence quality, in quantity, automatically and silently, at speeds up to 92 characters per second, which is six times faster than an IBM Magnetic Card Selectric Typewriter. It can also act as a terminal, transmitting the same quality imaging at even greater speeds, by telephone line, to locations thousands of miles away. The first IBM printer to accept sheets as opposed to a continuous roll of paper, the 46/40 carries its own logic and can work independently or in concert with a computer, for data processing tasks.

■ The IBM Word Processor is designed

for office environments with extensive revision work, requiring large-scale, computer-like power and storage. The Word Processor/32 uses GSD's small System/32 and is being marketed by both GSD and OPD sales people.

"An ideal customer for the 32," says Mike Garelick, a Word Processor/32 manager, "would be a law firm with multiple Mag Card Typewriters, whose main job is customizing a lot of 'boiler plate' text—wills and contracts, for example—to its individual clients. The system also offers extensive revision and formatting capability."

The computers are a new learning experience for OPD sales representatives, many of whom have never dealt with a computer before. OPD sales reps are going back to school. A number of GSD people from Boca Raton, Palo Alto, and Atlanta are transferring to OPD to share their expertise. Says one: "I'm excited from a career point of view. We're at the fore-

front of the division's future, and the future looks very bright."

First shipments are scheduled to begin in November.

Meanwhile, a demonstration model of the 46/40—which will be marketed initially in Texas—is located in OPD's first National Word Processing Systems Support Center, in Dallas. Under the management of S. J. Kalow, who holds a master's degree in management information systems, the center's intent is to provide a unique new level of sales assistance and customer education.

Says Kalow: "The word processing environment is characterized by many manufacturers offering specific word processing solutions, for example, display typewriters and shared logic text processing systems. But we have decided to focus on the broader information processing needs of the office place and to help customers implement office systems on a worldwide scale if necessary."

117,000 individual droplets, electrically, to find a designated place within the strict boundaries of a carefully prescribed imaginary matrix or to drop into a gutter and return to an ink-bottle reservoir for recycling.

Then, the problems in both development and manufacture become complex indeed.

"We decided early that the ink would have a water base," explains Don Elbert, the OPD manager with responsibility for ink development. "For one thing, water can be made a good conductor of electricity, and you must have something that is nontoxic and nonflammable."

But water can also corrode. A fact that had to be carefully considered in choosing the stainless steel of the nozzle, the

plastic of the bottle reservoir, and the valves, filters, and flexible tubes through which the ink must pass.

Ink has to be very strictly controlled to prevent deposits inside the nozzle. Tap water was out, because of mineral deposits. Paper fibers or metal chips carried by the ink can also cause clogging. Even airborne dust, invisible to the naked eye, can jam the tiny nozzle opening. Among other things, the engineers developed four ink filters to keep the head clean.

The bottle reservoir, in which the ink is also shipped, was dropped and tested time and again against breakage or leakage, heated to 140 degrees Fahrenheit, and frozen at 40° below.

But what about the ink's reaction to the outer environment, as it moves through

the air to hit the paper? Water evaporation and air drag will affect its speed. "One of the cleverest things about the machine, I think," says an admirer, "is that there is a special sensor built into it. The machine is constantly checking and correcting for environmental changes."

To assure the ink's purity, it's being manufactured in a special room where the largest contaminant allowed is one-half the size of the smallest particle visible to the naked eye. As for its durability—there are those who compare it to monk's ink. "I don't know anything about monk's ink," laughs Elbert, "but if you're talking about the ink's archival qualities, it's not going to be faded out by sunlight. In that sense it's as permanent as anything you'll find in old manuscripts." ■



In a class by itself

At La Hulpe, seven schools have come together on a single site. It's the company's biggest education facility: the Arthur K. Watson International Education Center.

By Ed Grimm

As he put key to keyhole, the white-haired Norwegian was greeted by a young woman passing him in the corridor. "Welcome to La Hulpe, Mr. Salicath," she said. Surprised and pleased, he thanked her and went into his room. A few days later, IBM Norway's chairman of the board was again pleasantly surprised—this time by a birthday party his Executive Development classmates gave for him.

This flair for the personal touch is almost as characteristic of the Arthur K. Watson International Education Center as its wide range of courses and academic intensiveness. For a visitor to the IEC, it can mean the difference between merely a professionally worthwhile stay and one that's also personally satisfying.

The big complex near the Belgian village of La Hulpe will enter its third year in September. It occupies a 200-acre site on the edge of the *Forêt de Soignes*, and environmentally conscious planners have designed it so that no building is taller than the forest's full-grown trees.

The IEC's seven schools (*see box*) are all in high gear, adding new courses and polishing and refining original ones. "The students aren't the only ones who have been learning," says British-born Bob Crampton, IEC director since July 1974. To date, the Center seems to have admirably passed two tests that once seemed formidable: combining seven international schools at one location without blurring their identities; and running a school and

a hotel with equal efficiency.

The schools now at La Hulpe used to be in London, Paris, Geneva, Ottignies (Belgium), and Blaricum (the Netherlands). The latter was the first international education center in IBM. Now it's a town hall, and the area where students had their coffee has become a marriage registration office.

Crampton remembers Blaricum well; he headed its Executive Development Department. "There were strong roots there," he says. "The other schools were well established, too, where they were. Not a few people thought that La Hulpe would just lump everybody indiscriminately into one big pile of students and teachers.

"It hasn't happened. The identities have been kept, and the schools are all the stronger for what we can offer them in everything from facilities to guest lecturers."

The IEC also gets good marks as a residence. There are 320 bedrooms in its three hotel blocks, as well as medical services, and a ticket and travel information center. The resident student can exchange home country currency for Belgian francs; choose reading matter in one of four languages; take a special bus into Brussels, 10 miles away, for the evening or merely spend it with colleagues downstairs at the *La Cave* coffee shop. For those wanting to exercise their bodies as well as their minds at La Hulpe, they can do so on squash, volleyball, or tennis courts;

along paths for walking, jogging, or bicycling; or in the gymnasium or swimming pool.

It doesn't take long after a student checks into the IEC to discover what kind of place it is. It's more than a matter of equipment, although that is formidable—an 8,000-book library with an information retrieval system, the latest in audiovisual learning aids, simultaneous translation equipment, four auditoriums seating from 42 to 500 people. "It's something you sense even before your first class," said a marketing student recently. "There's just a feeling that teaching and learning are important here."

Classes range all the way from the three-day Objective Setting sessions of the Advanced Marketing Institute to the 10-week course given by the European Systems Research Institute. The newest IEC school is Advanced Technical Education.

"The idea behind ATE," says Hans Hazelzet, manager of DP technical education, on assignment from IBM Netherlands, "is

(Continued on page 30)

Top: The U.S. antitrust situation is discussed at a morning class for country financial administrators. IEC courses take note of the effect of outside events on the company.

Right: Noontime stroll at La Hulpe. For those wanting to bicycle or jog, there are other paths. Also on the grounds: one of Europe's most beautiful rhododendron valleys.



Under one roof, seven schools

The La Hulpe lineup of schools and courses:

- The European Systems Research Institute offers nearly 60 courses in subjects ranging from information and data base systems to statistics and personal development. Students choose the mix of subjects most useful to them. There are also classes for those wanting to update their knowledge of subjects previously studied.
- The Advanced Marketing Institute offers classes in English, French, and German. Among the subjects: information systems planning, branch office management, and a Harvard Business School class in financial management. Many AMI courses have been adapted by IBM country organizations for local use.
- The International Finance, Planning, and Administration School: The stress here is on learning how IBM manages its business, particularly across international lines. Courses include financial management, budgeting, total supply management, OP administration—and a new class for administrators in countries with General Business Group organizations.
- DP Customer Engineering Management Training helps CE managers ponder the role of customer engineers in today's technological environment.
- Advanced Technical Education is the newest school at La Hulpe. Its classes and workshops seek to instill a "total system outlook" in systems engineering students.
- The Executive Development Department concentrates on developing the skills and insights of experienced managers and executives.
- The International Customer Executive Program features lectures on industry applications.

(Continued from page 28)

to lift the systems engineers' eyes beyond their own specialties and make them able discussion partners on the software of an entire system. In no way does this dilute their own expertise; what it does is give them a strong sense of everything involved."

The most recent ATE course was attended by systems engineers on large international accounts, among them: Rolls-Royce, Renault, and Swissair. The course has been patterned after one developed by IBM at San Jose, Calif., and is being custom-fitted for European students.

San Jose is very much in the picture, however, in the person of George Bright, who has come from there to an assignment at La Hulpe. Bright will teach the ATE course beginning this fall. "This field is very dynamic," he says, "so we have to try new things out all the time. We play around with the computers a lot at night."

"Sometimes," he adds with a smile, "I feel I'm still on West Coast time."

Of the seven IEC schools, six are concerned with professional education. The seventh—the Executive Development Department—is perhaps easier to explain than define. Here's how its manager, Jorma Partinen of Finland, puts it: "Undeniably, the key place where managers learn to manage is in their daily job. The successes and failures they experience in running their part of the business all leave a deep impression. Over the years, their careers will lead them through different jobs. From time to time, they may get involved in a special task force or an international assignment."

"But none of that is enough. They need the chance to push away from their desks and spend some time sounding their own depths, confronting their own attitudes, acquiring perspective. This is what we help them do."

Some of this school's faculty have backgrounds in line management; others in management development. Together, they explore with students that crucial terrain where the operations of IBM intersect with cultural and economic influences.

In October, the 100th session of the International Management School, which is the main EDD course, will be held.

Even though its physical plant is completed, the IEC keeps breaking new ground in what it does. This past January, 13 Belgian people who have no connection with IBM began an 18-month course. They arrive by bus in the early morning and leave by bus in the late afternoon. They are all either totally blind, partially blind, or otherwise physically handicapped.

Under a program begun by IBM Belgium, these men and women are being



Derek Linney
IBM United Kingdom



Marie-José Zonnerel
IBM Belgium

There's an absence of distractions here. You don't have to think about putting up the bookshelves at home that evening or even paying next month's mortgage. Those things seem awfully far away. They disappear into the background, and, as a consequence, you can concentrate and do a lot of work without actually realizing how hard you're working.

trained as programmers and analysts. In specially equipped rooms, they are learning to use computer terminals, to understand programming languages, and to design flowcharts. Special machines allow the blind students to "read" computer printouts by feeling electronic signals through their fingers.

The students won't be at La Hulpe for the entire 18 months. Part of that time they'll spend with the companies that will hire them at the course's end. All these companies are members of the Association for Integration in Data Processing.

As the IEC enters its third year, Bob Crampton believes its main challenge will be to keep the students coming. "We must keep selling our product—which is knowledge—to the market—which is the countries." In tight business times, he points out, there is often a reluctance to send a valuable sales representative or systems engineer off to school. "The point is—and more and more are grasping it—that the sales rep or systems engineer will be immensely more valuable for having been here."

If Crampton and his staff are understandably enthusiastic, how do the students feel about La Hulpe and the IEC? A round-table discussion with some of them reveals a few gripes but, overall, a high

degree of satisfaction.

The systems engineering students, halfway through their 10-week course, are mindful of the time involved and of a sense of isolation. "There are some days," says Derek Linney of IBM United Kingdom, "when you almost want to start digging a tunnel. Actually, though, the isolated environment helps. You can concentrate and do a lot of work without quite realizing it." He finds his teachers "refreshingly honest." Daniel Chemin of IBM France feels that "the quality of education" far outweighs other considerations.

There's a look of abiding cheerfulness to the IEC. It's heightened by the bold representations of modern art on corridor walls, and by the gardens planted with flowers for every season (heather in the winter). As a matter of fact, it's difficult to come upon any real evidence of negativity. Except, perhaps, on the tennis courts.

During a recent student tournament, one singles match in particular seemed a far cry from Wimbledon. Ball after ball went into the net or out as both players struggled with their games. An onlooker asked through the fence who was winning. One of the perspiring combatants answered him ruefully: "Tennis certainly isn't."



José Moreira
IBM Portugal

For me, coming from a distant Latin country, the first few days had some problems. But after that, everything became all right. This is my second time at La Hulpe, and again I am learning many things. For myself, though, the most important thing is to be with people of other countries and to talk of experiences with them.



Bust of A. K. Watson was placed in the gardens this year. It was sculpted in bronze by Robert Berks, who has also done busts of John F. Kennedy, Pablo Casals, and Albert Einstein.

Think

READERS' GUIDE

To what the company keeps about you and what you have access to

It has been two years now since Chairman Frank T. Cury initiated what Columbia University's Dr. Alan Westin, a well-known authority on the subject of computing and record-keeping, has called, "in my experience, the most extensive review of my private organization of its record-keeping activities so far as its employees and managers are concerned."

Here are some developments of which you may not be aware:

Personnel folders The familiar blue personnel jacket has been split into two parts.

One, called the employee personnel folder, contains biographical data such as records on recognition and achievement. It also contains an employee's past three appraisals and may contain records from company-sponsored training courses. However, grades and instruments evaluation data may be kept in the personnel folder for three years only and must be shared with the employee.

The second part is called the personal document file (formerly the personnel envelope). It holds papers of a distinctly personal nature, such as home guarantees agreements, life insurance beneficiary designation, and any other legal documents. This file is withheld from one's immediate manager and made available only to members of the branch or personnel staff with a need to know. Your manager can arrange for you to see both files. Or, if you prefer, you may go directly to personnel.

PDS prints out IBM's Personnel Data System is used as a source for statistical studies and for various reports. A more extensive printout of individual employee data is now available for your review. You can ask your manager to see it or go directly to personnel.

Employee data maintained by managers. Some managers may keep information about their employees ranging all the way from home telephone numbers to hand-written notes regarding performance progress or career interests. If your manager keeps such material, he or she will discuss it with you on request, all of it except Inc. business confidential material such as salary forecasts.

Medical records If you wish to see your report from the Voluntary Health Program, you may do so, through the new medical department. If you wish to have the medical staff review your overall medical record with you, this can be arranged upon request.

Employee publicity It is a traditional practice in publishing employee promotions, reassignments, Quality Control Club inductions, job acts, retirements, and other milestones and achievements. However, if you'd prefer, you can pass up publicity, unless this does not conflict with the information needs of the business.

Tuition refund credits From within, job-related courses are no longer subject to review by your manager. They are a matter between you and the payroll department, which will reimburse you directly.

Credit checks If your friendly automobile dealer calls and wants to know your salary, before financing the car, the company won't tell him without your written permission.

Only in the most unusual circumstances, often involving government authorities, will the company release, in response to an outside request, anything more than an employee's title, location, and date of employment.

Despite a period of great stress and just when its critics were beginning to think the market system was breaking down

IT WORKS

by Larry Chimerine

That favorite routine of the stand-up comic—some good news and some bad news—fell pretty flat on the economic front over the past few years. Mostly, the news was all bad, and nobody was laughing. Bad enough to worry businessmen and economists alike. Proof enough, said many a critic of our economic system, that the market economy was no longer working.

Along with declines in the sale and production of goods, we had mounting unemployment. But at one and the same time we also experienced record increases in prices.

Conventional economic wisdom has always told us that these things do not happen simultaneously. And so the obvious conclusion was that something had broken down, that our traditional laws of supply and demand were no longer working.

In this case, however, the obvious was wrong. For the most remarkable aspect of this period was that the market economy was working—and in the teeth of a combination of circumstances and events that seemed calculated to knock conventional economic wisdom into a cocked hat. Far from being repealed, the law of supply and demand was working overtime.

That unprecedented and improbable combination of forces, the like of which we are not apt to see again, included these:

- An overheated world economy, growing out of a prolonged period of expansion in worldwide industrial production and trade.
- Easier access to world markets, which made national economies and monetary systems react to each other like Pavlov's dogs to the dinner bell.
- The sharp and sudden oil price increase by the OPEC cartel. (A cartel, almost by definition, throws a monkeywrench into the normal functioning of supply and demand.)
- Worldwide shortages of many other basic raw materials.
- Widespread crop failures just when millions of people around the world were beginning to feel they could afford a little more, so the price for grains—the world's basic food—went rocketing to new heights.
- Efforts, mostly abortive, to cartelize other basic commodities.
- In quick succession, two devaluations of the U.S. dollar, which meant other countries could buy our goods cheaper, but which raised the prices we had to pay for products we imported.

Looking that list over, we can see that it would have been hard to deliberately create a set of forces better calculated to destroy the operation of a market economy.

The reason our economy seemed not to work was the tendency on the part of many to oversimplify this tremendously complex system. Some reached wrong conclusions about eco-

nomic events simply because they failed to take into account all of the relevant factors affecting those events. Others, having some knowledge of economic cause and effect, looked too eagerly for a response at the first sign of a stimulus.

But economics does not operate by knee jerks. The trends and forces have a life and inertia of their own. At the start of the Great Depression of the 1930s, for example, there were some corporations showing satisfactory profits and some individuals with unchanged or higher incomes, even while the overall movement of the economy was sharply downward. Similarly, the deflationary forces that set in recently, after a period of steeply rising prices, could not derail the inflationary momentum. All those who believed their prices or wages were lagging behind the parade kept trying to "catch up." And so the counter-inflationary forces could do no better than moderate the inflationary trend, not reverse it.

When the prices of cars and other consumer goods kept going up in 1974 and 1975, even though demand was off, many wailed that "the law of supply and demand doesn't work any more." What they overlooked was that the law has two sides, and that supply can affect prices just as much as demand. Supply, of course, has to be affected by the costs of obtaining or producing goods, whether those costs involve steel prices, machinery prices, oil prices, or labor's wages and fringe benefits. And the fact was that, recession or no, the automobile and other industries were being hit by big cost increases in 1974 and 1975.

Didn't the curtailment of demand have any effect at all? Of course it did. By preventing a full pass-along to the consumer of these higher costs, reduced demand kept prices from going up even more sharply. Hurt most by all this were the companies whose profit margins dipped, some even slipping into the red.

By going beyond the most simple and superficial kind of economic judgment, it can be seen that the market system has been working in its usual fashion. Items:

- When grain prices shot upward in 1972 and 1973, farmers started to plant more. U.S. grain acreage has risen by 16 percent since 1973. But for 20 years before that time, grain prices were flat, or even declining, compared to other prices. And acreage given over to grain production kept going down during those two decades. Since 1973, the increase in output has been able to reverse the rise in grain prices and slow down the upward spiral in retail food prices.
- It's hard to believe, but crude oil was a surplus commodity worldwide from 1955 to 1973. Because its price was dropping,

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relative to other prices, the number of wells drilled annually in the United States tumbled from over 31,000 to around 10,000, a drop of 69 percent. But the picture changed with the quadrupling of world prices—and of prices for newly discovered oil in the United States. In both 1974 and 1975 the number of new wells increased by almost 30 percent.

- When energy prices shot upward, the public complained bitterly. But people also became much more conscious of the costs of energy, and looked around for ways to cut back on its use. Higher gasoline prices at first shifted demand toward smaller and more efficient foreign cars, initially built for countries that have always had much higher gasoline prices. U.S. carmakers then responded with improvements in energy efficiency and a bigger proportion of small cars in the production mix. But then rising incomes and the need to replace the traditional family car led to another shift in the unpredictable behavior of the American consumer, who showed a renewed preference for larger cars. Other forms of energy saving, however, brought a halt to the customary year-to-year climb in energy consumption as a whole, as consumers showed continued sensitivity to higher costs of fuel and power.
- The materials-producing industries—metals, cement, lumber, paper, etc.—lagged behind the rest of the economy in capital spending throughout the 1960s. This failure to expand capacity contributed to the materials shortages of 1973 and early 1974. Higher prices brought increased profits. Many material producers are now plowing back those profits into new or expanded plants, marking the first substantial increases in capacity since the 1950s.
- Many basic commodity prices, which had gone sky-high, dropped sharply during the recent recession. Copper, tin, lead, grain, and lumber prices all came tumbling down, some by 50 percent or more. Even some OPEC members actually cut prices, either directly or through special concessions, in the face of lower demand.

In spite of all these signs that economic laws were carrying on as usual, there were some other indications that they were going berserk. Here, again, there were sound explanations for what was happening.

Why, for example, didn't retail prices of food and other products dip as much as raw material and farm prices? Was it because of the power of corporations to "administer" prices or the lack of competition in the marketplace? It was, in fact, neither of these sinister influences. Basic materials did go down in price, but they account for only a small fraction of the total cost

of most products. The rest is labor, transportation, and other costs that continued to go up. Lower basic material costs did have an effect, but only to slow the rate of price increases to about half of what they had been.

The same thing happened in reverse back in the days of double-digit inflation. When commodity prices doubled, tripled, or quadrupled in 1973 and 1974, the prices of finished goods went up much less. Gasoline prices, for example, went up around 50 percent, compared with a 300 percent price rise in crude oil.

Another basic relationship in our system that appeared to have slipped a cog was the "Phillips curve," a favorite plaything of economists. Normally, the Phillips curve shows that high unemployment and large wage increases do not take place at the same time. And yet the United States and many other countries had both rising unemployment and above normal wage demands in recent years.

The fact is that the Phillips curve itself reflects only one part of the total economic picture. Unemployment is only one of the variables that influence wages. The cost of living is another one. Especially when large price increases are concentrated in such necessities as food, energy, and housing, as they were from the end of 1972 to 1974. As a matter of fact, wages did not go up, in a real sense. Wage gains actually fell short of matching the increase in prices, so that real after-tax earnings of the average production worker dropped by about 10 percent.

This was a new experience in modern U.S. economic history, and not a very welcome one. It spurred heavier pay demands. In 1974 and 1975, hourly wage increases in the private sector went up an average of 8.5 percent, compared with a 4.8 percent average in the 20 years before that.

A broader view of the Phillips curve sees it as the relationship between unemployment and the rate of inflation—one tending to go up when the other goes down. But again, this is only part of the story. Inflation is indeed the opposite number to unemployment. But it is also one of the causes of unemployment. Most economists agree that the sharp price inflation of the early 1970s, by reducing purchasing power, led to a drop in consumer buying. In turn, came lower production, job layoffs, and swelling unemployment rolls.

Another area that aroused some skepticism about economic laws was the failure of fiscal and monetary medicine to cure the ills of the system. It had been supposed that inflation could be curbed or economic activity stimulated by the black magic of government spending, taxation, or controlling the money supply.

At one time or another, all these were tried. And, to a large extent, they worked. The tax cut in the spring of 1975 became a major factor in the consumer-led economic recovery that followed. Moreover, the \$18-billion in unemployment benefits paid out in 1975, along with other types of income-maintenance payments, surely prevented the recession from becoming worse. Many of these so-called "automatic stabilizers" trace back to the Great Depression. They were designed not only to relieve the hardships of unemployment, but also to cushion a downturn in the economy. In 1975, they helped realize both objectives.

As for inflation, monetary policy helped—in the long run. But for the short term, monetary policy can be virtually helpless in seeking to overcome powerful inflationary forces. It can help moderate the demand-pull inflation of "too many dollars chasing too few goods." But it is usually of little effect in controlling the cost-push inflation that grows out of rising wages and other costs. Tightening the money supply can make credit harder to come by and can raise interest rates. But it can do nothing about droughts in the farm belt, a failed Soviet grain harvest, or the determination of the OPEC cartel to boost energy prices.

Many people also cite the steep climb in government spending and in government debt over the past 25 years as an indication that the free market economy is withering. It is indeed true that the more resources the government controls, the fewer there will be left for the free market to utilize. But the fact is that there has been little relative change in Federal Government expenditures. They have shown very little increase as a proportion of Gross National Product over the years, except for sizeable emergency spending during the recent recession. The real upturn in government spending has been in the states and cities. Many of the additional funds have gone into education—a consequence both of the postwar baby boom and of the desire of most people to have their children better educated.

Similarly, the rising national debt is hardly likely to strangle our economy. Over the last quarter-century the debt as a percent of GNP has actually been cut in half. The high levels of deficits in 1975 and 1976 were incurred mainly to obviate human suffering during the recession and to give an added push to economic recovery. It should also be noted that government deficits tend to be highly inflationary when employment is high and the economy is straining toward its upper limits; but not when there is a lot of slack in our factories and labor markets.

Our economic system, far from breaking down, has thus

demonstrated an uncommon ability to hold up. From a low point early in 1975, economic conditions have continued to improve, emphasizing the self-correcting and remarkably resilient nature of the system itself. True, a great many individuals have yet to feel any of the benefits of recovery. But we need to remember that it takes time to pull out of the deepest recession in 40 years.

It is a truism to point out the folly of trying to win a new war with the weapons that succeeded in the last one. And it is also perilous to expect short-range economic history to repeat itself. Nevertheless, the lessons of the Great Depression helped serve us during the recent downturn. And there should also be lessons worth learning from the extraordinary period we have just been through. Such as:

- In an economy as large and as complex as ours, the search for simple rules and miracle cures is almost certain to be fruitless. Manipulation of money supply, for example, is neither the root cause nor the sole solution to all our economic problems.
- We have long been in the habit of focusing economic policy principally on demand. It is dangerous to ignore supply. Production is every bit as important as consumption. We need strong policies to encourage higher productivity and increased supplies, especially of basic materials.
- Economically, the world keeps knitting more closely together. For years our analysts have largely ignored economic conditions outside the United States. But with increased world trade, improved capital flows, faster communications and transportation, our insulation from the world economy has worn thin. We must count the rest of the world into our forecasts and analyses.
- Economic forces must be given the time they need to work. We should not be overawed or overcome by every movement of each economic needle. We have heard much, for example, of the dark prospects of a severe shortage of capital. It is true that some of our long-run social goals may be most readily achieved by downplaying consumption and pointing more of our resources toward capital investment. But this should be long-range policy, not short-run expediency. The current economic recovery has improved the financial condition of most U.S. corporations, as well as the liquidity of our financial institutions, thus shoring up the national supply of capital for investment. Should future capital shortages occur, it is likely that the market system will respond to them, possibly in concert with needed tax and policy changes.

There are probably other lessons to be learned as well. Perhaps most important is one that we ought to relearn again and again: The system of a free market economy, augmented by sound government economic policies, is far from perfect. Yet it has proved more adaptable, more durable, and more responsive to human need than any other yet devised. ■

With Princeton economist
Peter Kenen

OUR GLOBAL ECONOMY

What have we learned from the recent cycle of worldwide economic crises? A look at some of the forces shaping international trade and their implications for business.

Dr. Kenen, after the steepest worldwide recession in a generation, is economic recovery now under way?

Yes it is—and the United States is leading the way.

What other countries are now in a recovery phase?

Most of the European countries are expanding, although at a rate somewhat below that in the U. S. And Japan's economy is on the upswing. Moreover, there is every indication that the expansion around the world will continue for some time.

Whatever happened to all those fears of another depression like the one in the 1930s? Why didn't it happen?

To understand, one needs to think back to the causes of the recession. The recent slump was to a considerable extent policy-induced.

Do you mean deliberately brought on by government action?

Yes. Sharply restrictive tax and monetary policies were adopted to combat inflation. Inevitably, such policies reduced business and consumer demand, leading to a decline in overall economic activity.

And then, to stimulate recovery, government policy reversed itself—with tax cuts and easier credit?

That is correct. The pattern was the same around the industrial world. First restrictive policy, and then relaxation to get the boom going again.

Does this indicate that the world economy is now depression-proof?

No, I wouldn't say so. Indeed, the experience of the last slump suggests that our economies are not so well protected against calamities like a full-

blown depression as we once thought they were. Serious weaknesses in our financial system—and in the financial systems of other nations—were revealed by the last recession. Some large financial institutions in the U. S. (one large bank and several smaller ones) got into desperate trouble. One bank in Germany went out of business, not so much because of the recession but because of losses suffered in the foreign exchange markets. Such troubles were serious and they raise questions about the resiliency of the financial system in the event of future business contractions later in this decade.

The next slump—when it comes—might it be even steeper than the last one?

I don't think we need to fear that future ups and downs of the business cycle will be necessarily larger or more violent. But there will be ups and downs—no permanent prosperity, no economic millennium, has yet been achieved.

Inflation has been severe in most places in the world, including the U. S., where, at its worst, the cost of living was going up at a double-digit rate. Must we learn to live with inflation?

It would be unrealistic to expect zero inflation. Wage costs keep rising faster than worker productivity, adding to business costs. In services—everything from haircuts to college bills and medical care—productivity gains are small, so prices keep going up. But that doesn't mean that we must expect double-digit inflation of the sort we had in 1973 and 1974. It took an unusual combination of events—the oil price rise, dollar devaluation, harvest

**Future ups and downs of the business cycle
will not necessarily be larger or more
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failures in many places around the world—to produce that rapid inflation. We can—and will—do better than that in the months and years ahead.

You mentioned foreign exchange markets. The U. S. dollar has been quite strong in the past year or so. Why is that?

I think there are four reasons. First, the current strength of the dollar follows a period in which the dollar depreciated substantially against most of the other major currencies, which meant that American goods became much more competitive in international markets. Additional U.S. export sales and reduced imports that come with a strong competitive position occur only after people have had time to adjust their orders and their production and their sales.

Second, the dollar has benefited greatly from the great strength of U.S. farm exports. Large parts of the world, suffering poor crops, have had to rely on the American farmer.

Third, the two dollar devaluations since 1970 have increased the attractiveness of the U.S. as a place for foreign businesses to invest since they have to put up less of their currency to meet wages and other costs in this country. Similarly, the devaluations made investment abroad less attractive for U.S. firms. The shifting balance of investment flows has strengthened the dollar.

Fourth, some of the surplus funds of the OPEC countries have been flowing into U.S. investments.

Will the dollar continue to outshine most other currencies?

Actually, the dollar has lost a bit of its earlier gleam in recent months be-

cause the U.S. trade position has weakened a bit. Imports have gone up faster than our exports. This can be attributed to the fact that the U.S. recovery is ahead of Europe's and Japan's, so U.S. imports are up. When the recovery overseas advances, demand for U.S. goods will rise. The dollar then will strengthen. I expect a relatively strong dollar for the foreseeable future.

Recently, several key foreign currencies have fallen sharply in value in the foreign exchange markets. Are these "competitive" devaluations of the kind used in the 1930s to gain an advantage in world trade?

No, I don't think so. The currencies hardest hit lately have been the British pound sterling and the Italian lira. I see nothing predatory there. The depreciations of the two currencies have been about in line with the severe inflations that have taken place in those countries. They have adjusted the values of their currencies to restore competitiveness lost during the rapid inflation.

Gold seems to have lost its earlier glitter, with its price sharply below its earlier \$200-an-ounce peak. Where does gold now fit in the international monetary system?

Gold needs to be viewed from two positions—legal and factual. At the moment there seems to be a sharp divergence between the two views.

The latest revisions of the articles of agreement of the International Monetary Fund, which were agreed to in Jamaica in January by the major finance ministers, will eliminate any reference to gold in the international monetary system.

Gold has been dethroned?

Gold will no longer play any statutory role in the system from now on. But, in actuality, I believe that despite such action gold will play a more important role—not a less important role—in the system in the next several years.

Then gold is going to be around for quite a while as part of the international money system?

Yes, and even though the new monetary rules forbid governments from buying gold for the next couple of years, I don't think such restrictions will last. Countries like France will then go into the market and buy gold for use both as international monetary reserves—to settle balance-of-payments debts—and as collateral for intergovernmental borrowings.

What's happened to "paper gold"—the so-called Special Drawing Rights (SDRs)?

SDRs were created on the books of the International Monetary Fund to settle accounts among member countries. SDRs were not designed as money to be used by businesses or individuals. Creation of SDRs has now been short-circuited.

By what?

Short-circuited by two things. First, the huge balance-of-payments deficits of the U.S. in the early 1970s placed large amounts of dollars into the hands of foreign governments. Second, the rise in the official price of gold (from \$35 an ounce to a free-market price recently of \$130 an ounce) added greatly to the value of

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In one of his last public utterances before he died in 1975, Britain's Arnold Toynbee, dean of historians, spoke of the need for "world unification" and predicted it would come, not through politics but economics, with international corporations hastening the trend.

Said Toynbee in an interview with *Forbes* magazine: "What I see is that the multinational corporation fills a vacuum. There is an increasing misfit between the fact of global economic life and the political organization of the world, in 140 local, so-called sovereign states. They aren't really sovereign because they are dependent upon the rest of the world for raw materials, and sometimes for food itself, in order to live. But they are as sovereign as they can contrive to be. Most of the economic troubles of the world are due to this misfit, between

the antiquated political setup of local states and the real, global economic setup."

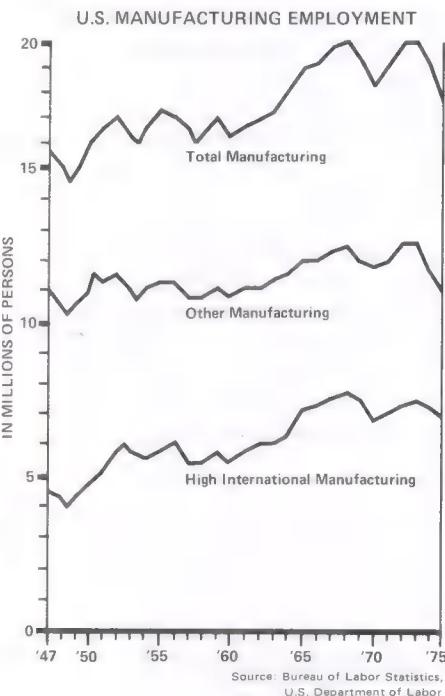
And, he went on to say, "multinational corporations precisely bridge this gap."

But not everyone sees it that way.

In a time of relatively high U. S. unemployment, some critics contend that U. S. international corporations are aggravating joblessness. Not so, according to the evidence. What's more, says IBM economist Alvin J. Karchere, the continuing increases in unit labor costs abroad are profoundly changing the basic economic relationships between the U. S. and other industrial nations. This will, he says, materially affect the flows of international trade and investment. With consequent effect on the activities of international corporations.

Do they? Or don't they?

Are U.S. international corporations exporting jobs abroad?



with the greatest number of international firms have grown much faster than the exports of other industries. Far from causing a loss of jobs, therefore, the international companies account for the major gains in domestic manufacturing employment.

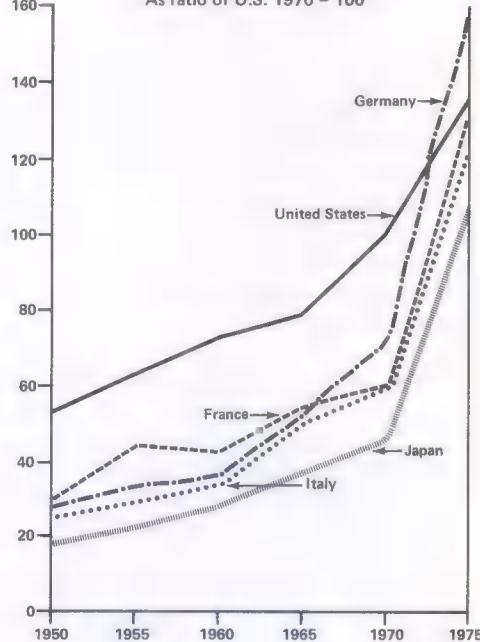
Steepest rise in unit labor costs? In those nations where much U.S. overseas investment has gone.

For 20 years, from 1950 through 1970, labor costs per unit of output—unit labor costs—were much higher in U.S. manufacturing industries than in similar industries in other countries. Partly as a result of these higher costs, the U.S. was losing its share of world markets. Meanwhile, with economic expansion and the growth of markets abroad, especially in the industrialized nations, U.S. companies found it advantageous to establish manufacturing units in those markets.

Since 1970, there has been a massive change in relative unit labor costs, which have risen much more steeply in other countries than in the U.S. Indeed, in West Germany the labor costs per unit of output have already passed those of the U.S., and those of France, Italy, and Japan are not far behind. Part of this dramatic change was brought about by the depreciation of the dollar, but most of it grew out of the more rapid increase of wages in Europe and Japan.

The consequence is a brand-new ball game, as U.S. manufacturers have become more competitive in world trade and have increased their share of world markets. This has meant a fundamental change that is just beginning to affect

UNIT LABOR COSTS As ratio of U.S. 1970 = 100



the world economy. U.S. overseas investment has begun to slow down, while there is a swelling tide of foreign international investment in the United States, such as Volkswagen's recent decision to open manufacturing facilities here. In the first half of 1976, according to the Conference Board, foreign investments in U.S. manufacturing were 60 percent higher than a year earlier.

As is often the case, public attention has been focused on U. S. international corporations and their investments outside the country just at the time when a turnaround is taking place in the entire international picture.

Sharpest growth in U.S. employment? You'll find it among the international corporations.

Since the end of World War II, there has been a gradual uptrend in manufacturing employment in this country. The sharpest growth of U.S. employment has been in those industries most heavily populated with international corporations, industries such as transportation equipment, machinery, electronics, chemicals, scientific instruments. Employment in other industries, meanwhile, has been virtually unchanged over the 30-year period. Why? In part, at least, this reflects the fact that the exports of those industries

The international company offers the best hope for developing nations to diversify their economies. But, sadly, many of these developing countries don't see it that way.

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official government reserves. As a consequence, few in the international community are enthusiastic about creating any more reserves via SDRs.

What changes do you see ahead for the monetary system?

That's a tough one. Who would have thought a few years ago that governments would abandon fixed exchange rates and allow the prices of their currencies to "float" upwards or downwards, within limits?

Would you expect a continuation of floating exchange rates?

Letting currencies float has accomplished an important political objective. Under the old, fixed-parity system every balance-of-payments crisis became a political crisis involving heads of government. Decisions had to be made to defend the exchange rate by using government financial reserves, or to change the rate by devaluing or revaluing. With today's floating system, market forces make such adjustments without political confrontations.

Moving on to another topic, do you see as likely the formation of commodity cartels like OPEC's in oil? What would such cartels mean for the U. S.?

Surely, producer countries would like to form cartels in copper and aluminum, and other commodities. But such cartels are not likely to succeed. In order to have an effective cartel you must have agreement on production cutbacks in order to keep supplies tight when demand weakens. The oil

producers are a small number of states with common political interests. The producers of other raw materials are more scattered, less cohesive politically, and less likely to get together on price and output strategy. Moreover, unlike oil, there is substitutability between these other raw materials—aluminum for copper, etc.

The OPEC cartel has caused serious financial problems for the industrial countries, but for developing countries the troubles are even more severe. What's the outlook?

Developing nations have had to cut back development plans and use the money to scrape by. High-priced oil and oil derivatives, such as fertilizer, have slowed production, brought more unemployment, and disrupted economic and political life.

Even before the price hike in oil, most underdeveloped nations were deeply in debt. In the last two years these nations have added another \$40-billion in debt—and many won't be able to keep up with loan repayments schedules. If default should come, banks and other private creditors are likely to go to their governments to try to get them to intercede with the governments of the developing countries to demand repayment. This could exacerbate relations between industrial countries and the Third World. This worries me.

Among developing nations, has the climate for international investment deteriorated?

Yes, it has—to the detriment of those developing nations. Not only is there often hostility toward deals that involve natural resources, but also to-

ward projects in which a foreign company wants to come in and set up a manufacturing operation. After all, the international company offers the best hope for developing nations to build exports, to diversify their economies, and modernize economic life. But, sadly, many of these developing countries don't see it that way.

What about the climate for internationals in the industrialized world?

I see no problems in the industrial world. We have read much recently about troubles stemming from bribery and high-handed activity by some internationals. But, by and large, the internationals have established themselves as a positive force; their contribution is recognized.

Are internationals going to expand in number? Or is the global company headed for curtailment, perhaps extinction?

I see more growth ahead for global concerns—especially non-American firms. For example, Volkswagen and Volvo are setting up shop in America. This country is increasingly attractive to foreign companies. Labor costs no longer are out of line with those abroad. Energy costs are low. Raw materials are abundant, and there is a huge, rich consumer market to tap in the U. S.

As you look ahead, are you optimistic about world economic prospects?

Let me put it this way: I don't expect the international economy to encounter more massive difficulties in the next decade than it did in the last ten years. But I am a shade less confident

about that prediction than I would have been a few years ago. It's the political uncertainties more than the economic that bother me.

Will living standards continue to go up?

Yes, they will—but not so rapidly as they did in the 1950s and 1960s.

World trade will continue to expand?

On world trade growth I am a bit pessimistic for three reasons. One, tariff reduction has about reached its limit; we cannot expect a new stimulus to trade from liberalization of tariffs and other barriers. Two, some part of the fast growth in trade during the 1950s and 1960s was due to the sharp expansion in the number of international firms. Dealings between plants in the same firm were internationalized and counted as part of foreign trade. Growth in internationals from here on will be more in line with growth in the world economy. Third, worldwide inflation will make government policy-makers a bit more cautious in management of the domestic economy. Less exuberant domestic economies, in turn, will mean that less demand will spill over into foreign trade.

Might slower world economic growth lead to demands within countries for protective trade barriers?

It would not be surprising.

In the U. S.?

Yes, both business and labor might begin keeping out foreign goods. And I am not sure that any Administration—Republican or Democratic—will be able to resist if the demands come in from all sides. Such action would, of course, invite foreign retaliation. All in all, it's going to be a tough, challenging period for the world economy. Things aren't going to get any easier for the American company trying to grow and prosper in an increasingly competitive world. ■

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And he'll go on wearing a white shirt

"An evolutionary process that was at times explosive. And the growth has been fantastic." That's how Warren C. Hume, who retired as IBM senior vice president on June 30, describes the 37 years he spent with the company. There wasn't even a computer industry in those early days, he says, "so there was always something new and exciting coming along—almost too many areas to get into. As a matter of fact, I've never been satisfied that I knew enough."

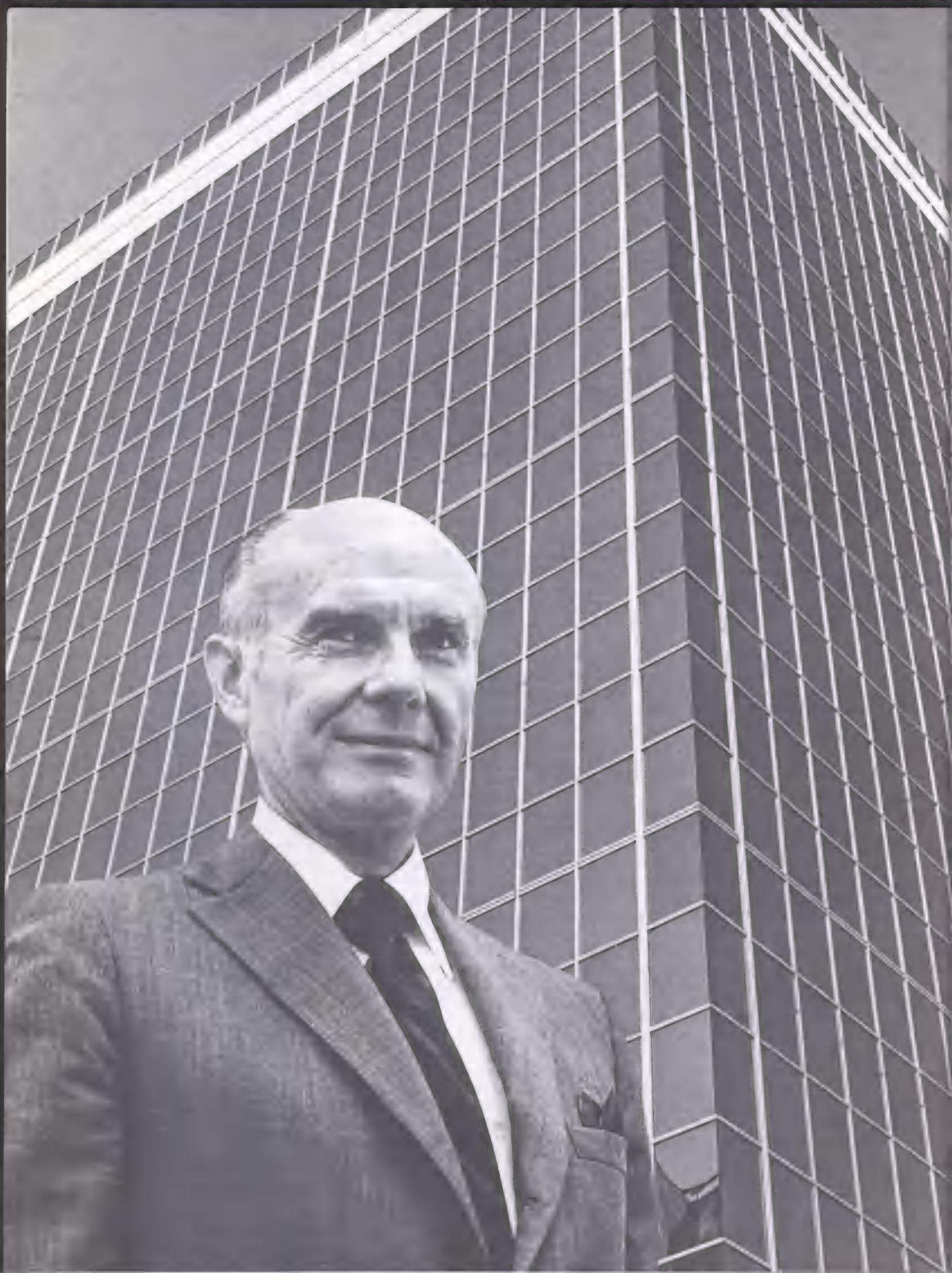
Hume was a junior at Rollins College in Florida, on a football scholarship, when he made up his mind that IBM was the place. The year was 1938. Thomas J. Watson, Sr., a guest speaker at Rollins, had talked about the "high premium IBM placed on continuing education," Hume recalls. "And being on a scholarship, I liked the idea. So I wrote and asked what it would take to get into IBM."

The upshot was a job offer when he graduated from Rollins a year later. Hume had hoped to work in Florida, but IBM already had a man there, so his first assignment took him back to Chicago, the hometown he'd left for Rollins (a warm haven during the chill Depression years, he says).

From Chicago he headed southward to St. Louis, where he made two Hundred Percent Clubs before getting into World War II as a Navy pilot in the Pacific. After V-J Day, Hume resumed a career that led to Endicott, Lansing, Milwaukee, Kansas City and, in 1960, back to Chicago as regional vice president for a year, before he became president of the Data Processing Division.

As IBM senior vice president (since 1967) and a member of the Corporate Management Committee, Hume has been responsible for the Corporate operations staffs—marketing, manufacturing, service, and engineering, programming and technology. A full deck to deal with. But retirement won't slow down the lanky six-foot Hume. He hopes to get in "more skiing and a few more rounds of golf to find out what my real handicap is. But that's not what I'm looking forward to. Fortunately, I'm on the board of other organizations [including his alma mater's], so I'll have plenty to do. I've taken a lot of ribbing down through the years about my white shirts and conservative suits. But I've also taken a great deal of satisfaction in being able to walk up to a group and have someone say, 'I'll bet you work for IBM.' That sense of pride will be with me for a long time." ■





Scotty's place

It's the Field Engineering Division. The customer's best friend.

by Edward F. Pierce

"I was working out of Indianapolis—it was in the early 1940s—and we were setting up a rather large installation for a customer about 60 miles away from the branch office. It must have been 11 or 12 o'clock at night, and I couldn't get the printer to print correctly. Our deadline for having the payroll checks available was 6 o'clock the next morning. So I picked up the phone and called Hank Pride, then an IBM customer engineer who recently retired as a region tech support manager. He got out of bed, dressed, drove 60 miles to the customer location, and had that printer working in 30 minutes."

IBM Vice President O. M. Scott, president of the Field Engineering Division, is in his White Plains Headquarters, between trips afield. He has just come from the division's Awards Conference in Dallas, and is about to head out again for meetings in Frankfurt, Germany. When asked to characterize the division, he is quick to focus on its people. That, he says, is "where the pulse is"—the customer engineers, program support representatives, dispatchers, service planning representatives, the people in administration, inventory, and distribution, field support, and all the rest of the division.

The Indianapolis incident is one of many, during Scott's marketing career, in which the customer engineer came to a cliff-hanging rescue. And this, he says, is why he's always felt a strong rapport with the customer engineer, better known as the CE.

Describing today's customer engineer, the FE president says that he or she has an average age of about 35 and has 10 or 11 years in the business. It is the CE who installs and services the machines—the hardware. The program support representative, or PSR, takes care of software—or programming problems. These FE people might be working in a big city like Dallas, New York, Chicago, or Los Angeles, and for one big customer with a

sizeable installation like the System/370 Model 158. Or they could be handling a dozen or so smaller customers using all sorts of IBM equipment, and spread out over a territory of 10,000 square miles in Alaska, and several thousand in places like Montana.

Scott has been president of the FE Division since it was formed a dozen years ago, and makes it a point to get around and meet the people as often as possible. He was in Alaska last fall, for example, where the territory is rugged—but has its own rewards. Not long ago, it was especially rewarding for one CE who had been summoned by a customer 130 miles southwest of Fairbanks. The CE left home by sunup and was well on his way when a bull moose crashed out of the woods by the roadside. As Alaskan custom will have it, the man was driving a pickup truck. He jammed on the brakes, reached for his rifle—which happened to be in the truck—leaped out, bagged the moose, loaded it in the back of the truck, and sped on to take care of his customer.

"In Alaska or wherever they may be, our people demonstrate a good deal of self-discipline," says Scott. "It's up to them to decide whether to work through a lunch break, into the night, on weekends—as they invariably do whenever a customer is in a tight spot. And there are important decisions to make relating to parts, particularly since some parts are rather expensive."

To order and obtain these parts, the CE depends on the people at the company's 21 distribution centers around the country. (The nerve center for those centers is Mechanicsburg, Pa., which also handles about 25 percent of overseas requirements.) The latest in inventory/distribution is a marvel of speed and efficiency, an automated storage and retrieval system, or ASRS, driven by computer. It is now at work in the San Mateo, Calif., distribution center, and scheduled for others around the country. When parts

are ordered, the request goes clear across the land to the Sterling Forest, N.Y., complex. The system uses a 3277 terminal to process the order and activates mechanical carriers back in San Mateo. That sends them down the warehouse aisles to select the correct tray of parts and take it to an inventory control specialist. Once the parts are selected, the tray is automatically returned to its original position. As Scott says: "We've probably got the most advanced inventory and distribution system for parts of any company in this country."

Whether problems involve new parts or minor adjustments, or they're major incidents, substantial help comes from a field technical support center in Chicago or Springfield, N.J., or one of the 15 field support centers. CES or PSRs out in the field, anywhere in the U.S. or Canada, can use these facilities simply by phoning in; within minutes they're getting help to resolve their problems.

In the early days, says Scott, there were neither support centers nor teleprocessing. Then, the CE was working mostly on electromechanical and unit record equipment, and his tools were fairly basic. If he had a particularly tricky problem, he'd call on another CE for advice. Then, multiple area technical information centers (MATICs) were developed to provide aid to the CE. These were forerunners of today's highly sophisticated support centers.

With the enormous variety of equipment out in the field today—running from the keypunches of the early 1940s to the high-end System/370 machines—the CES and PSRs need all the help they can get, including 15 to 20 days of schooling each year to keep abreast of new developments and techniques.

The approach today for the CE and PSR is planning for the unexpected rather than reacting to it. "In this business," says Scott, "whether it concerns hardware or software, the most successful people are those who do the best job of planning

ahead—anticipating and even preventing trouble. We know from our customer surveys, for example, that one of the greatest impacts on customer satisfaction is preventive maintenance.”

* * *

Among those in the Field Engineering Division who are used to planning for the unexpected are people like Mike Gamble, John Mylenski, Deborah Wootton, Rich Thompson, Whitey Lichtenberg, and Jan Broyles. While they don't encounter Alaskan moose in their working environment, their assignments add up to a sort of microcosm of the FE world.

■ Twenty-one-year-old Mike Gamble is a CE based at 2 Penn Plaza in New York City—that's an office building in the Madison Square Garden/Pennsylvania Station complex. He has just one customer—the New York Telephone Company—and spends all his working hours with that customer on East 37th Street, where five System/370 Model 158s are used for maintaining records, payroll, billing, and keeping track of special orders for special telephones.

Gamble joined the company three years ago, out of Brooklyn Tech. “I started working with smaller systems—the 135 and 145,” he says, “and was transferred to the big systems about a year ago. It was scary at first because I'd never been in this kind of environment. Now I like it.

“We do most of the time-consuming work on the machines on Sunday because the phone company can't afford to have the machines down during the week. I set up preventive maintenance schedules—what has to be cleaned, what needs replacing—during the week so we can take care of everything on Sunday without any

When a customer runs up against a problem with his IBM equipment, how does he know whether it entails hardware or software? Sometimes he can figure it out from his own observations. Or his own data processing specialists can spot the trouble. If not, when he calls in to an IBM dispatcher to report a malfunction, the symptoms themselves may indicate whether the cause is hardware or software.

If, however, there is not enough information, or some ambiguity in the report, the IBM customer engineer will determine where the problem lies. If it turns out to be software, he will call in a program support rep.

And sometimes the fault lies not in the IBM equipment at all—software or hardware. In a teleprocessing environment, for example, it could be caused by a faulty telephone line.



Mike Gamble, a New York City-based CE whose customer is the New York Telephone Company.

trouble at all. During the recent Democratic Convention, the phone company ran a lot of lines from Madison Square Garden to many of the hotels and other buildings in the city, so we were under a lot of pressure to keep the machines up.”

■ John Mylenski, who is headquartered at the White Plains branch office, also has just one customer. And that customer happens to be IBM—Data Processing Division Headquarters at 1133 Westchester Avenue, where Mylenski services some 400 pieces of data recording equipment, ranging from keypunch to teleprocessing terminals. He joined the company two-and-a-half years ago. “I guess it was a matter of family influence,” he says. “My aunt used to work for IBM, and my sister is also with FE. I was selling insurance at the time, and decided it wasn't the career for me. I had heard only good things about IBM, so I applied for a job, was interviewed and hired.”

As a data recording CE, Mylenski says: “Every call you get can be a critical call, especially if you're dealing with teleprocessing in a commercial atmosphere. When a user's terminal goes down, he's stagnated until the terminal is brought back up again; and when a 3270 control unit goes down, it can affect 20 or 30 terminals.

“Whatever the situation,” he feels, “you have to go in with a sense of humor. Sometimes a customer will call and say something minor is wrong, maybe the attention key on the Selectric keyboard won't work. Then you arrive and find that a belt is broken, or something like that, and it's a three-or-four-hour job. Another thing, if the customer sees the CE in a relaxed frame of mind, the customer's own attitude is more optimistic.”

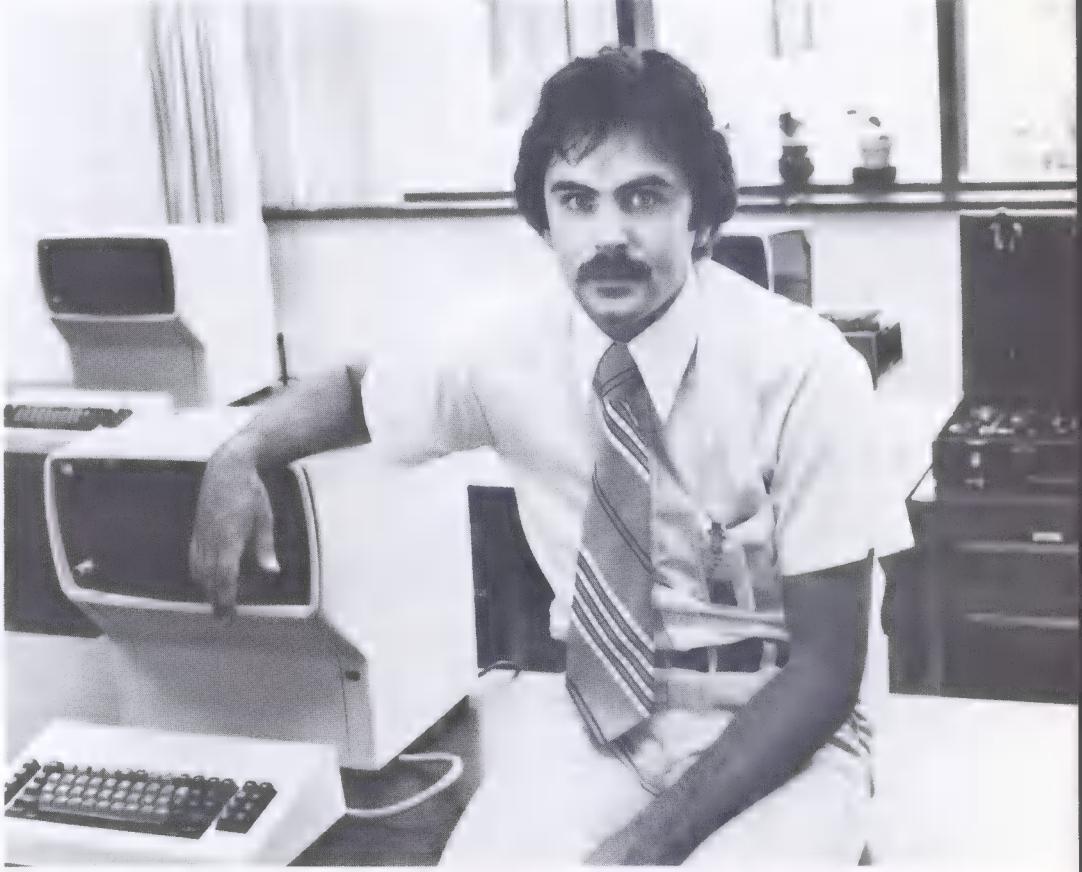
Mylenski, 26, sees the data recording CE's job changing, becoming more interesting and more challenging. The direction is also changing, he says, “and pretty drastically. It is moving from the unit-record type of keypunch into the more sophisticated teleprocessing equipment.”

■ While Mike Gamble and John Mylenski each service one big account, Richard H. Thompson watches over some two dozen customers in his Ohio River Valley territory. Thompson, who is 31, is a senior resident customer engineer and works out of the Charleston, W. Va., branch office. But his territory is centered around Portsmouth, Ohio, where he lives with his wife and 9-year-old daughter, about 90 miles from Charlestown, and extends to Maysville, Ky. (He drives 300 to 400 miles a week.)

Thompson, who earned an IBM Means



Richard H. Thompson, senior resident CE, works out of Charleston, W. Va. (Below.)



John Mylenski, data recording CE, Data Processing Division Headquarters, White Plains.



Service Award in 1975 and attended the Awards Conference in Dallas last May, joined the company nine years ago. Among his customers are the Goodyear Atomic Energy Commission (Goodyear manages it for the government), Norfolk and Western Railroad, a shoe plant, and local banks. "I use the Raleigh support center quite frequently," he says. "I can plug into it, and that way I can work on a problem without tying up the customer's central processing unit. Goodyear has a 1401 and 1410 with a RAMAC on it—yes, it's still chugging along—used mostly for inventory control and payroll. As for Norfolk and Western—well, their cars don't move unless the teleprocessing is up and running."

When Thompson isn't calling on customers, two main interests keep him occupied. He owns half a plane (a friend owns the other half)—a Cherokee 140—and flies on weekends. He's also on the board of directors of the West End Ministries, an affiliation of six churches. "We had a payroll of \$200,000 last year," he says, "to cover the costs of a tutorial program for children with learning disabilities, a day care center for working mothers, and a senior citizens' program."

• Deborah Wootton, another award winner, is a program support rep at the San



Deborah Wootton, program support rep at the San Diego branch office.

Diego branch office. She says that she has had "just about any kind of training you want to name—from keypunch to programming for System/370 Models 125, 135, and 145. I love learning more about the job and maybe that's why I've been sent to so many schools."

Ms. Wootton, who is 24 years old, had a year of college, as a math major, at Southwestern University. She is currently studying calculus at Southwestern in her spare time, and hopes ultimately to get a degree in astrophysics. "The thing I like about the company," she says, "is that it's a place where you can do so many things."

■ "I've got the best job in IBM." That's how Richard L. (Whitey) Lichtenberg feels about his work. Lichtenberg, who joined the company in St. Louis 20 years ago, is a senior service planning representative at the FE facility in Kingston, N.Y.

Why is his job so great? "Well," he says, "I interface with everybody—engineering, marketing, and manufacturing. And that kind of variety makes each day very exciting." Today, he says, field support is expanding its role, and "we're getting more involved and have more effect on programs and development than we've ever had. And we are involved in what a

product does from a profit point of view."

At present, Lichtenberg is responsible for "the technological coordination of the 3790 program from the Field Engineering point of view." The 3790, he explains, is basically a data entry and data access system. Two large customers—Workwear, Inc., based in Los Angeles, and Wilson Sporting Goods, based in Chicago—are setting up 40 to 50 terminal networks. Since this is a new field for them, he says, "it requires the dedication of the customer as well as IBM to manage that network."

In his 20 years with the company, one of the most exciting events occurred in 1972: He was an IBM representative at NASA's ground control station in Houston for the Saturn/Apollo space program. "We watched—and heard—it all on the monitoring screens," he says. "That was something."

The strongest link between customer and customer engineer is the dispatcher. Twenty-six-year-old Jan Broyles, senior dispatcher at the Dallas branch office, explains it this way: "Although we basically take a customer service request and relay the call on to the CE, we're really a nerve center because all activity relating to a call, from its receipt to its completion, is channeled through dispatch—and that includes both hardware and software



Richard L. Lichtenberg, senior service planning rep at the FE facility in Kingston, N.Y.

calls." Dallas dispatch runs 24 hours a day, 7 days a week, which means off-shift rotation work for Mrs. Broyles and the 10 other Dallas dispatchers. Each prime-shift dispatcher handles the calls for 50 to 60 CES. Mrs. Broyles shares in the shift rotation, but her primary responsibilities as senior dispatcher are work coordination and management liaison.

Mrs. Broyles, who was a psychology major at Texas Tech, feels that this has helped her in her work because a dispatcher's job requires so much customer contact. "Although most contacts are routine, occasionally we talk to a customer who is upset," she explains. "It is our responsibility to reassure the customer, and we can do this by being patient and polite. If we come across friendly and sympathetic, it can make a big difference to a customer who has to wait for a CE to arrive."

Emergencies of some sort happen almost daily, she says, "but generally we are able to deal with them quickly. For example, we had a brief power failure in Dallas once, which caused CPUS [central processing units] all around town to go down at the same time. For about 20 minutes it was madness in dispatch, with 40 or 50 customers calling in at once. We were so busy taking customer calls that we didn't



Jan Broyles, senior dispatcher, Dallas branch office. Dispatchers in background are, left to right: Gail De Lancey, Deanna James, Debbie Ellison, and Karen Mascolino.

even have time to radio the CES. Ultimately, most of the machines were brought back up through phone discussions with customer engineers."

Mrs. Broyles feels dispatch is a vital part of the branch office operation. "If we do our jobs right we can often save the CE time and make the customer feel that IBM does—indeed—mean service. Yes, dispatch is right in the middle."

* * *

And what of the future for the Gambles, Mylenskis, Woottons, Thompsons, Lichtenbergs, and Broyleses of the Field Engineering Division?

"It looks very good indeed," says FE President Scott. "The customer is moving toward more data base systems and more teleprocessing, which obviously means many more terminals in the field. And the customers are now as dependent on software as they are on hardware. So no matter what the job is in Field Engineering, it is evolving toward broader responsibility and skills."

"Our people have something which is a great asset to the company. It existed in my Indianapolis days, and it still does today. It's an attitude of absolute dedication to solving a problem—regardless of what the problem is. This kind of pride is invaluable to IBM and our customers." ■

Care and feeding of a databank

"The most remote point that man has been to is the moon. On some of those moon shots, if you recall, when our astronauts encountered difficulties they discussed them with ground control. Here at the field technical support center, we are ground control for FE people."

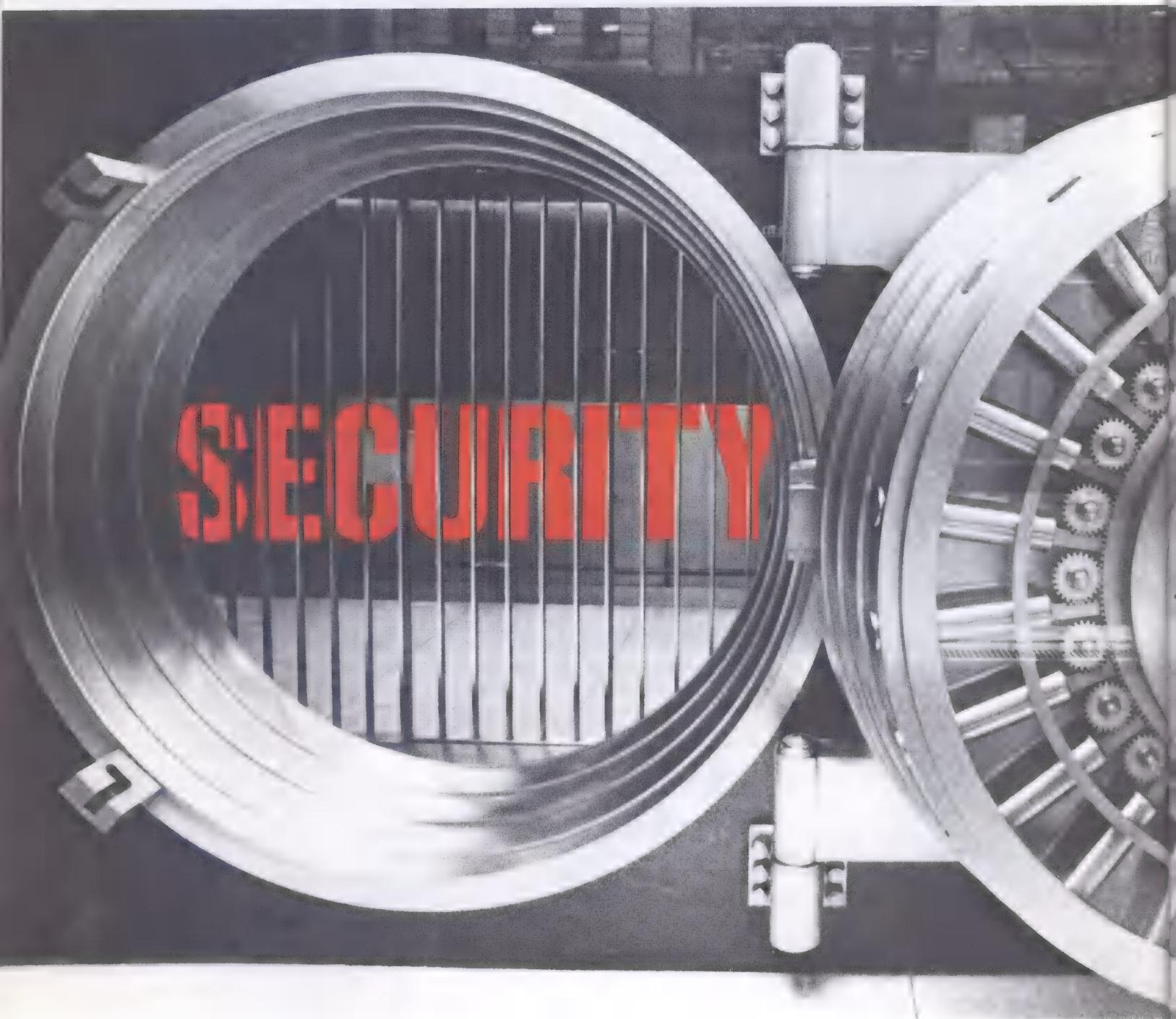
That's how Tom Spitznagel, operations manager, explains the function of the center in Springfield, N.J. "When our people in the field encounter a problem, they discuss it with us, and we recommend solutions." These solutions are contained in the FE Division's RETAIN/370 databank (Remote Technical Assistance and Information Network).

Essentially, RETAIN works as follows: A CE working on a problem in a customer's office calls in and gives some of the details. At the support center, the database is interrogated—the search is on for symptoms in the bank to match the symptoms encountered by the CE. A search

argument is entered and compared to all hardware symptom/fix records in the databank. The R/370 system will then respond with an indexed list of symptom/fix records whose symptoms "match" the search argument.

The symptom/fix file, says Spitznagel, is generated for the most part by information provided by the CES themselves. "Whenever we encounter a new problem here at the center, we open up an incident, start a record concerning the problem. When the CES fix it, we ask them to call back and tell us what fix applies to that particular problem."

A similar facility is available for program support people. When the PSR runs into a problem at a customer location, he or she does some work on it, then calls in enough information to help put together a logical search argument. This information is then entered into one of several software PASS (Program Assisted Symptom Search) libraries in the R/370 databank. "These libraries contain information on known programming problems," says Spitznagel. "Sixty to seventy percent of the time, when a PSR phones in with a problem, we already have information on it in the databank."



More than ever, it's every employee's business.

Museums use vibration detectors and instant-replay cameras to note any unauthorized movement of a work of art. At airports, closed circuit television cameras can spot prowlers two miles away in the dark. In more and more courthouses, a "panic button" is located near the judge's gavel. Security guards with walkie-talkies man hotel corridors during the Olympic Games.

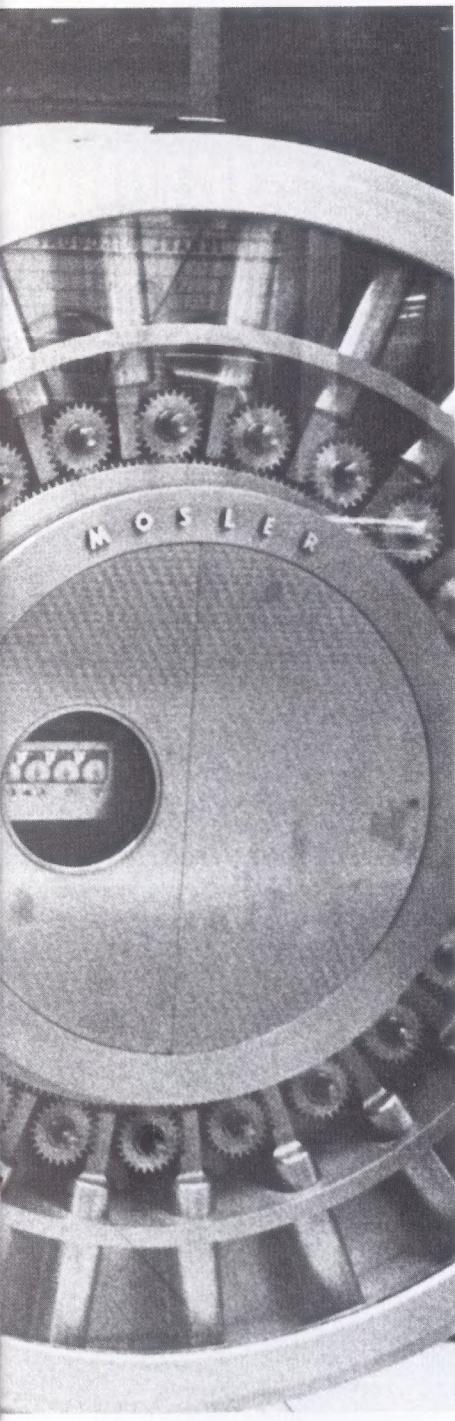
The average citizen is becoming increasingly accustomed to sophisticated security practices in both public and private sectors of a world where the safety of people and property can no longer be taken for granted.

But good security practices, according

to IBM Security Director Joseph R. Rosetti, are no better than the thinking behind them. At IBM, security means a continuing reassessment and highly selective analysis of priorities.

Even the newest employee is already acquainted with at least some of the security measures the company has taken in recent years:

- Badges—more of them, required in more places, especially areas where unannounced engineering is in progress.
- The System/7 Controlled Access System (CAS), which can instantly invalidate faulty identification cards.
- Closed circuit TV, in some areas, to guard against tailgating.



"We have the tools, the system in place. What we're doing now is some fine-tuning. We're isolating those sensitive areas that help make IBM what it is and are building islands of security around them, to make them more secure against those who would deprive us of our leading edge, 'our property.'"

The threat is both real and continuing. Recent examples of embezzlement and theft within the company include the forging of signatures on travel advance accounts and the carrying off of IBM scrap metal by the truckload. Both cases have been solved.

A notable case of industrial espionage occurred three years ago, at the San Jose site, where one employee, two former employees, and others (later tried and convicted) misappropriated highly valued technology.

In the Telex case, the court ruled in part . . . "that IBM's trade secrets and confidential data which it was entitled to have respected by former employees, were revealed to and utilized by Telex."

Other attempts to get at IBM's property include the theft of customer lists (an individual is under indictment) and an unsuccessful offer for sale by a former IBM employee in Germany of a valuable IBM specification document (the offer was made to 12 companies, two of whom promptly reported the fact to IBM). These attempts brought quick reaction.

In stepping up to these new problems, it was clear that extreme security measures would be counterproductive. Too many restraints are, in their way, a threat to creative technology.

Says Dr. Lewis M. Branscomb, IBM vice president and chief scientist: "Laboratory and plant managers ultimately have the responsibility for technology security. But they are also responsible for ensuring an adequate degree of diffusion of new technology within the company, for professional development of our technical people, and for public visibility for some of their notable achievements. It's important

that a proper balance be struck."

In order to identify the company's technical valuables, security looked to the division presidents for technical expertise. In 1974, Bob O. Evans, now of the System Communications Division, loaned Paul Eckelman, experienced in technical management at both product division and corporate levels, to assist security. Ted Papes (System Products Division) appointed Dick Deininger, now on the SPD technical staff at East Fishkill. Their mission: to develop a systematic way of evaluating company valuables that could be used throughout the corporation.

Thirty-three locations worldwide are now in the process of evaluating their respective technical assets with some early interesting results. "When we first went into a lab or plant," says Eckelman, "we concerned ourselves primarily with what the managers considered key to their successful operation. We asked them, 'What are those items you regard as the most valuable—that you could not afford to lose?' These turned out to be anything from an idea advancing the state of the art, to a business plan, a design algorithm, or a manufacturing process. We then put our heads together to determine what other locations here and abroad made use of the same information in their development or manufacturing operations. Management then moved to assure that controls used to safeguard the 'gems' in one area applied elsewhere.

"Often," says Eckelman, "certain details of a product, properly classified as sensitive before first customer ship, can be declassified once the product has reached the marketplace and is subject to reverse engineering by anyone who cares to take it apart." However, some products, even laid bare, fail to give up their secrets.

To put a proper protection program in place requires a concerted overall effort. IBM's commercial and industry relations staff through its patent operations group provides counsel on the legal adequacy of protection programs and conducts trade

- Isolation of computer centers.
- Registered records centers, where carefully controlled registered documents, including blueprints, must be logged in and out.
- Cabinets with double locks.
- Terminal hardware features that prevent use by unidentified persons.
- Computer programs for inventory control and data security.
- More security officers on car patrol in parking lots—to guard against vandalism and car theft.

"All these things," says Rosetti, "are by now well recognized throughout the company as necessary protection for our people and products.



Most of us in IBM don't think about the idea that there are people who are interested in getting at our information to use for their benefit, even in spite of some of our experiences over the last few years. We're just too busy thinking about how to do things in new and unique ways.

But as a company in which a great deal of energy and money is spent to develop innovative ideas, in a very concrete way, we are building a large repository of information some people would like to get their hands on.

We need to remind ourselves continuously that practicing good security and doing the things routinely done by security-conscious people are necessary. It's a question of sharpening up our sensitivity to security and keeping it sharp.

*John R. Opel
IBM President*

secret law educational programs for line management. The vice president and general counsel recommends to Corporate management what, if any, legal action should be taken as a result of an actual or suspected misuse of proprietary information. The engineering, programming and technology staff gives technical advice on issues of value of proprietary information. The finance and planning staffs provide guidance on records classification and control procedures. Internal audit conducts audits to assure the adequacy of the security efforts.

This collective thinking has brought a new appreciation of IBM's technical know-how, and its need for protection. To the surprise of many, a manufacturing process that the company has taken for granted for years is still unknown to competitors, giving IBM a considerable lead.

With initial fine-tuning well under way throughout IBM, teams of technical and security personnel now make periodic reviews of each other's locations. Fresh pairs of eyes prove helpful.

"Maintaining an adequate level of security ties your hands somewhat and adds to the work load. There were some objections by my people at first," admits J. L. Kuharik, project manager, manufacturing engineering, SPD Endicott. "They want to get the job done, and it chafes when it takes a little longer. But they realize that security is a must."

Other managers agree. "The security awareness that came out of this review is worth its weight in gold," says one. Another: "The awareness that I thought existed really didn't, but it does now."

Already, according to Dan Evangelista, IBM assistant general counsel, who has companywide security responsibility, there are signs that the company's new program is paying off. Competitive equipment doesn't follow IBM to market as rapidly as it used to. "We know," says Evangelista, "the controls we have in place, and we move quickly on incidents that suggest someone has made an attempt to steal our

ideas or our technology."

Such attempts are not confined to development and manufacturing, says Ed O'Donnell, consultant on the Corporate security staff. "We cannot afford to overlook the importance of our business information in our nonmanufacturing areas."

"Security is not a science," sums up one security manager. "It's elusive by nature. You can do a lot of good things, but you'll never know when you've done enough. That's why it's so important that everyone in IBM think security as he or she goes about the job, whether in designing a product, developing it, or classifying documents. After that, our job is easy." ■

Ideas are assets, too

The protection of IBM's assets is every employee's business. These assets are more than physical plant and equipment, more than production machines, computers, and typewriters.

They include technologies and concepts; ideas, business and product plans, as well as information about the business. They include drawings, computer programs, surveys, and charts.

They also include the safety and well-being of IBM people.

In past years there have been significant, well-documented cases of misappropriation of IBM assets, including concepts and technologies. This illegal behavior has cost the company—and its stockholders and employees—millions of dollars in lost revenues. These losses also represent theft of the ideas and creativity of IBM people and of the competitive advantages these ideas would have brought in the marketplace.

Says IBM Security Director Joseph R. Rosetti: "Respect IBM's assets as you would your own. IBM property, ideas, and information belong in the plant, laboratory, or office—not in the office of a competitor."

NEVER
ANOTHER
DAY
LIKE
IT



Up New York's Hudson River, an array of 212 sailing ships from 34 nations, including 16 of the world's largest wind-jammers, glided silently past gray battleships at anchor, in Operation Sail '76. Atop their tall masts, white-uniformed crew members stood at attention, a special treat to the thousands who watched from either shore. In Washington, D.C., thousands more found their way to the Kennedy Center, to review "America on Stage: 200 years of the Performing Arts," and still others, in Chicago, to the Art Institute, to pore over "The World of Franklin and Jefferson" exhibit on tour. As dusk fell on the nation's capital, a show-stopping salvo

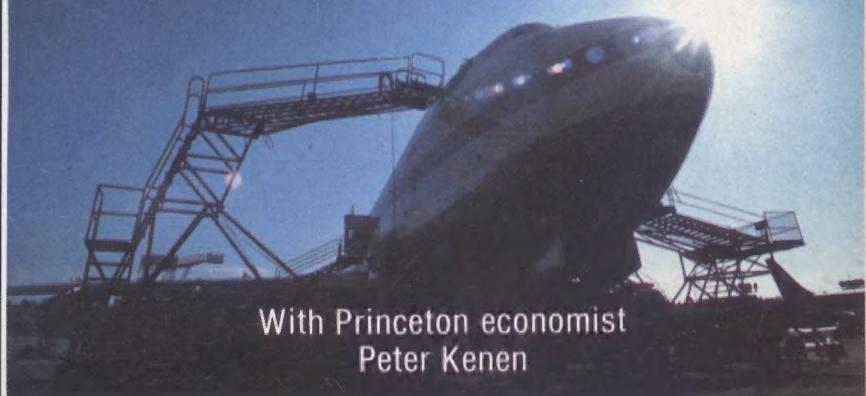
of fireworks saluted "Happy Birthday, U.S.A."

These were some of the events to which IBM contributed, to help the country celebrate the Fourth of July this Bicentennial year. For those who weren't on the scene, NBC presented an all-day coverage of Bicentennial happenings, as well as a roundup at 10 p.m. sponsored by IBM.

By consensus, Operation Sail proved to be one of the hits of the day. As a memento of that event, IBM is putting together a movie that will combine the best of IBM's earlier film, *The Tall Ships Are Coming*, plus the event itself. The film will be available this fall.

Concluding article in the series on
'Business and how it works'

OUR GLOBAL ECONOMY



With Princeton economist
Peter Kenen

Also, a point-by-point assessment by IBM's Larry Chimerine of how our market economy weathered the economic crises of these last several years. His verdict: "It works." Page 32

MEET THE PRESS

Says Frank Cary: "For 24 of my 28 years in IBM, I was not very involved with business journalism. In the past four years, I seem to have made up for that." A report on his role as company spokesman.

Also, the views of three distinguished journalists on business and the press. Page 18

SCOTTY'S PLACE

It's the Field Engineering Division, headed by O.M. Scott since its founding 12 years ago. Some of the people who keep things up and running. Page 40

La Hulpe. It's the biggest education center in IBM. Page 28
Security. Still every employee's business. Page 46
Teaming Up. From OPD and GSD, two new products. Page 26

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